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OXFORD STUDIES ON THE ROMAN ECONOMY

TRADE, COMMERCE, AND THE STATE IN THE ROMAN WORLD

EDITED BY

Andrew Wilson & Alan Bowman

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Andrew Wilson Alan Bowman

OXFORD STUDIES ON THE ROMAN ECONOMY

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Trade, Commerce, and the State in the Roman World

Edited by

ANDREW WILSON AND
ALAN BOWMAN

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Preface

This volume has its origins, like its three predecessors, in a conference organized as part of the research programme entitled ‘The Economy of the Roman Empire: Integration, Growth and Decline’, funded by the Arts and Humanities Research Council in 2005–10 and directed by the editors. Fuller information on the aims of the research project can be found in the introduction to the first volume, *Quantifying the Roman Economy: Methods and Problems* (ed. A. K. Bowman and A. I. Wilson, 2009); here it suffices to note that the project aimed to bring together both archaeological and documentary evidence relevant to the nature and performance of the Roman economy in four main diagnostic areas—urbanization and demography, agriculture, trade and commerce, and mining and metal supply—with a particular interest in data that allow some degree of measurement and quantification, and the delineation of trends over time. This volume focuses on the evidence for trade, and, in particular, it explores the relations between commercial activity and regulation, interest (especially as regards customs duties), and involvement on the part of the state. Most of the chapters were originally delivered as papers at a conference on ‘Trade, Commerce, and the State in the Roman World’ held in Oxford on 1–3 October 2009.

We are grateful to the AHRC for the award of the grant that supported the research programme, and to Baron Lorne Thyssen and the Augustus Foundation, whose support for the project has allowed us to continue the Oxford Roman Economy Project’s research programme well beyond the period initially funded by the AHRC. We are grateful also to Dr Gareth Hughes, who, as the project’s administrative assistant at the time, assisted with the conference organization; to the staff of the Stelios Ioannou Centre for Research in Classical and Byzantine Studies, where the conference was held; and to all those who contributed to the discussion at the conference. Nichole Sheldrick and Erica Rowan kindly assisted with the preparation of most of the texts; and Angela Trentacoste with obtaining some of the image permissions. The preparation of this volume has, for a variety of reasons, taken longer than any of us could have foreseen or wished, and we thank the authors for their patience during this process.

Andrew Wilson
Alan Bowman

March 2017

Contents

<i>List of Figures</i>	ix
<i>List of Tables</i>	xv
<i>List of Contributors</i>	xvii

1. Introduction: Trade, Commerce, and the State <i>Andrew Wilson and Alan Bowman</i>	1
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PART I. INSTITUTIONS AND THE STATE

2. The State and the Economy: Fiscality and Taxation <i>Alan Bowman</i>	27
3. Law, Commerce, and Finance in the Roman Empire <i>Boudewijn Sirks</i>	53
4. Market Regulation and Transaction Costs in the Roman Empire <i>Elio Lo Cascio</i>	117
5. Financial Institutions and Structures in the Last Century of the Roman Republic <i>Philip Kay</i>	133
6. Nile River Transport under the Romans <i>Colin Adams</i>	175

PART II. TRADE WITHIN THE EMPIRE

7. The Indispensable Commodity: Notes on the Economy of Wood in the Roman Mediterranean <i>William V. Harris</i>	211
8. Stone Use and the Economy: Demand, Distribution, and the State <i>Ben Russell</i>	237
9. An Overview of the Circulation of Glass in Antiquity <i>Danièle Foy</i>	265
10. Procurators' Business? Gallo-Roman Sigillata in Britain in the Second and Third Centuries AD <i>Michael Fulford</i>	301

11. The Distribution of African Pottery under the Roman Empire: Evidence versus Interpretation <i>Michel Bonifay</i>	327
12. The Supply Networks of the Roman East and West: Interaction, Fragmentation, and the Origins of the Byzantine Economy <i>Paul Reynolds</i>	353
13. Prices and Costs in the Textile Industry in the Light of the Lead Tags from Siscia <i>Ivan Radman-Livaja</i>	397
14. Exports and Imports in Mauretania Tingitana: The Evidence from Thamusida <i>Emanuele Papi</i>	427
PART III. TRADE BEYOND THE FRONTIERS	
15. The Silk Road between Syria and China <i>David F. Graf</i>	443
16. Egypt and Eastern Commerce during the Second Century AD and Later <i>Roberta Tomber</i>	531
17. Money and Flows of Coinage in the Red Sea Trade <i>Dario Nappo</i>	557
18. The Port of Qana', a Junction between the Indian Ocean and the Mediterranean Sea <i>Barbara Davidde</i>	579
19. Trade across Rome's Southern Frontier: The Sahara and the Garamantes <i>Andrew Wilson</i>	599
<i>Index</i>	625

List of Figures

8.1. Hypothetical map showing zones around an urban centre, illustrating distance (left) versus effort (right), and showing the effect of different costs of land, river, and maritime transport for importing stone	242
8.2. Map of quarry sites in the Roman Empire (Russell 2013b)	244
8.3. Map of quarries in Roman Gaul and Britain, with key sites mentioned in case studies labelled (Russell 2013b)	245
8.4. Sites in southern Gaul mentioned in case study	247
8.5. Sites in Britain and northern Gaul mentioned in case study	248
9.1. The main evidence of maritime and river trade in raw glass, glass for recycling, and manufactured glass in the Mediterranean during antiquity	269
9.2. Distribution of painted bowls of the first century AD	275
9.3. Percentages of stamped vessels in each category	279
9.4. Stamped vessels attesting local trade	281
9.5. Stamped vessels attesting regional trade	283
9.6. Stamped vessels attesting inter-regional trade	284
9.7. Stamped vessels attesting inter-regional trade from northern Italy (top) and Britain (below)	286
9.8. Distribution, from Italy, of stamped <i>unguentaria</i>	288
9.9. Distribution of two types of <i>unguentaria</i> bearing two variants of the state stamp PATRIMONI emanating from two centres: Italy and probably northern Gaul	290
10.1. The area of purposive collection of the potters' stamps published in Hartley and Dickinson (2008–12)	304
10.2. The distribution of La Graufesenque potters' stamps (A to E) of all dates (but predominantly second half of first century AD) in Britain and the lower Rhine	306
10.3. The distribution of sites with finds of early second- to early third-century AD Lezoux potters' stamps (A to E)	308
10.4. The distribution of potters' stamps (A to E) of Lezoux in Britain, early second to early third century AD	309
10.5. The distribution of potters' stamps (A to E) of Rheinzabern, second to mid-third century AD	310
10.6. The distribution of potters' stamps (A to E) of Rheinzabern in Britain and the lower Rhine, second to mid-third century AD	311
10.7. The distribution of potters' stamps (A to E) of Trier, later second to mid-third century AD	312

10.8. The distribution of potters' stamps (A to E) of La Madeleine, second century AD	313
10.9. The distribution of inscriptions referring to <i>negotiatores</i> (after Whittaker (1994: fig. 29))	316
10.10. The distribution of potters' stamps (A to E) of Les Martres de Veyre, predominantly early second century AD	317
10.11. The distribution of potters' stamps (A to E) of Les Martres de Veyre in Britain and the lower Rhine, predominantly early second century AD	318
10.12. The distribution of potters' stamps (A to E) of Montans, c. AD 10–30	319
10.13. The distribution of potters' stamps (A to E) of Montans, second century AD	320
10.14. The distribution of potters' stamps (A to E) of Montans in Britain, first and second century AD	321
11.1. Map of the main African pottery workshops (after Bonifay and Tchernia 2012)	330
11.2. African amphora types mentioned in the text	333
11.3. Map of the shipwrecks mentioned in the text	336
11.4. Patterns of African pottery distribution (after Bonifay and Tchernia 2012)	338
12.1. Map of sites mentioned in the text	354
12.2. Late Roman Amphora 1–5 and 7 (from Riley 1981: fig. 10) (reproduced with kind permission of the Kelsey Museum of Archaeology, University of Michigan)	356
12.3. Levantine amphorae of the second century AD	357
12.4. The development of the Beirut amphora, from its late Hellenistic late third- to second-century BC Sidonian predecessor (<i>a</i>) and its first appearance (in Beirut fabric) in the late second century/100 BC (<i>b</i>), to the latest examples of the seventh century AD	358
12.5. The origins and development of the Late Roman Amphora 1 type from the first to seventh centuries AD	359
12.6. Map showing the sources and relative quantities of imports to Beirut and Butrint, early third century AD	361
12.7. Map showing the sources and relative quantities of imports to Beirut and Butrint, mid-third century AD	362
12.8. Map showing the sources and relative quantities of imports to Beirut and Butrint, late fourth century AD	363
12.9. Map showing the sources and relative quantities of imports to Beirut and Butrint, AD 400–50	364
12.10. Map showing the sources and relative quantities of imports to Beirut and Butrint, AD 500–50	365
12.11. Map showing the sources and relative quantities of imports to Beirut and Butrint, late sixth century AD	366

12.12. Butrint, third-century AD imported cooking wares; Phocian imports in the Viganj shipwreck (Jurišić 2000)	368
12.13. Levantine exports to the West and Egypt (second–third centuries AD)	369
12.14. Beirut, third-century AD Kapitän 2 and Black Sea amphorae	372
12.15. Beirut, percentage of total amphorae, all sources (local versus imported)	383
12.16. Beirut, relative percentage of close regional amphorae, by source	383
12.17. Butrint, Samian and related forms, fifth to sixth centuries AD	388
12.18. Beirut, typical forms in AD 551 (BEY 006.13359) and late sixth-/early seventh-century (BEY 006.5503) assemblages	389
13.1. Lead tags from Siscia (see chapter appendix for catalogue descriptions) (drawing: Miljenka Galić; copyright: Zagreb Archaeological Museum)	398
13.2. Lead tags from Siscia (see chapter appendix for catalogue descriptions) (drawing: Miljenka Galić; copyright: Zagreb Archaeological Museum)	399
13.3. Lead tags from Siscia (see chapter appendix for catalogue descriptions) (drawing: Miljenka Galić; copyright: Zagreb Archaeological Museum)	399
13.4. Lead tags from Siscia (see chapter appendix for catalogue descriptions) (drawing: Miljenka Galić; copyright: Zagreb Archaeological Museum)	400
13.5. Proportions of tags with and without prices	402
13.6. Price levels on tags	407
13.7. Proportions of the original inscriptions giving different price ranges	408
15.1. The Han Empire and the ‘Western Regions’ (after Mutschler and Mittag 2008: 452)	450
15.2. The Han Empire and the West (map by Chris Hanson, after Hill 2009: 690)	454
15.3. The ‘Jade Gate’ at Yumen Guan, Yadan National Park, 80 km north-west of Dunhuang in Gangsu Province, China. The gate was erected by Emperor Wudi after 121 BC, at the final post on the major route leading to the Western Regions in Central Asia (photo: John E. Hill)	466
15.4. Map of Central Asia and the Tarim Basin (map by Chris Hanson, after Mair and Hickman 2015: fig. 1.1)	467
15.5. Map of overland and maritime silk routes (map by Chris Hanson)	477
15.6. Satellite image of Palmyra (image courtesy of A. Schmidt-Colinet, with labels added by Chris Hanson; Quickbird imagery, copyright: Digital Globe/European Space Imaging and A. Schmidt-Colinet)	482
15.7. Tower tombs at Palmyra, with the tower tomb of Kitot (Tomb 44), dated to AD 40, at far left (photo: courtesy of Andreas Schmidt-Colinet)	487
15.8. Silk fabric from the tower tomb of Kitot (Tomb 44), with Chinese text (‘year . . . long-living . . . son . . . grandson’) woven into design. In Palmyra Museum until 2015 (Schmidt-Colinet, Stauffer, and Al-As’ad 2000: Farbtafel VIIIa, Kat. 223; copyright A. Schmidt-Colinet)	488

15.9. Map of the caravan route from Palmyra to Charax and the Persian Gulf (map by Chris Hanson, after Gawlikowski 1994: 30)	491
15.10. Palmyra, sarcophagus relief of a seagoing ship, from a tomb with an inscription mentioning a Palmyrene captain who sailed to India. In Palmyra Museum until 2015 (photo courtesy of A. Schmidt-Colinet)	493
15.11. Peutinger Map, sections X–XI, showing Parthia and the routes across the Iranian plateau to India (by permission of the Österreichische Nationalbibliothek, Vienna)	499
15.12. Peutinger Map, section XI: depiction of Muziris and Temple of Augustus nearby (by permission of the Österreichische Nationalbibliothek, Vienna)	500
16.1. Location map of Red Sea sites and roads (A. Simpson, based on a map by P. Copeland)	532
16.2. Pottery of the second half of the second to the mid-third century AD: Costrel (1); <i>Sakkia</i> pots and jars (2–4); Cooking wares (5–8); Egyptian amphora (9) (modified from Tomber 2001: fig. 6.1)	536
16.3. The Indian Ocean showing sites mentioned in the text (A. Simpson)	542
16.4. Gold and silver coins from India, indicating second-century coins (A. Simpson, modified from Turner 1989: map 1)	545
16.5. The Persian Gulf and adjoining regions showing sites mentioned in the text (A. Simpson)	546
17.1. Proportions of Roman coins found in India struck in the reigns of Augustus and Tiberius compared to those struck from Gaius to Caracalla; total = 6,751	568
17.2. Chronological distribution, by reign of issue, of numbers of Roman gold and silver coins found in India	569
17.3. Chronological distribution, by reign of issue, of the total face value (in <i>denarii</i>) of Roman coins found in India	570
17.4. Chronological distribution, by reign of issue, of the face value (in <i>denarii</i>) of Roman coins found in India, divided by the number of years of each reign	571
17.5. Chronological distribution, by reign of hoard deposition, of the total face value (in <i>denarii</i>) of Roman coins found in India	574
18.1. Map of the South Arabian Peninsula in antiquity (after De Maigret and Antonini 2000: 42)	580
18.2. Maritime trade in South Arabia (De Maigret and Antonini 2000: 88)	581
18.3. Sabaeen coin, series with the portrait of Augustus (mould from private collection; photo: Barbara Davidde)	582
18.4. Ḥaḍrami coin, series with head/eagle (photo: Sedov and Aydarus 1995: 20, fig.13)	584
18.5. Khor Rori (Source: Google Earth. Image © 2016 DigitalGlobe)	586

18.6. Reconstruction of the site of Qana' (Mouton, Sanlaville, and Suire 2006: 807)	588
18.7. Map showing the northern bay of Qana' and the area of the underwater archaeological survey (drawing by Massimiliano Ena: after Davidde, Petriaggi, and Williams 2004: fig.1)	589
18.8. Seabed weight used as mooring stone (photo: Barbara Davidde)	590
18.9. Seabed weight used as mooring stone (photo: Barbara Davidde)	590
18.10. Dressel 2–4 amphora made in Laodicea, inv. no. 33 (drawing: Marco Sangiorgio)	591
18.11. Dressel 2–4 amphora made in Laodicea, inv. no. 105 (drawing: Massimiliano Ena)	592
18.12. Dressel 2–4 amphora made in Laodicea, inv. no. 44 (drawing: Marco Sangiorgio)	592
19.1. Saharan trade routes in antiquity, showing foggara oases that are certainly or probably ancient, and finds of Roman artefacts (A. Wilson/M. Anastasi)	601
19.2. The central Fazzan, showing sites where Roman material has been found. There was foggara-fed irrigation almost continuously along the length of the Wadi al-Ajal between In Tafaret and al-Abyad, but for the sake of clarity foggaras are shown only at the western and eastern extremities, Tin Abunda and In Tafaret, and al-Abyad (A. Wilson/M. Anastasi)	602
19.3. Quadrans of Domitian, AD 83–5 (<i>RIC</i> 34, ex Evans: Heberden Coin Room, Ashmolean Museum). Obverse: rhinoceros bicornis advancing left; reverse: IMP DOMIT AVG GERM around SC (photo: Ashmolean Museum, by permission)	611

List of Tables

2.1. Tax rates at Karanis, mid-second century AD	33
2.2. Tax rates in Egypt, mid-second century AD, dependent villages	33
2.3. Land and taxes at Karanis, mid-second to early fourth centuries AD	44
5.1. Bank Balance Sheet 1	158
5.2. Bank Balance Sheet 2	159
5.3. Bank Balance Sheet 3	159
6.1. Consignments of agricultural products received at the harbour of the Sacred Grove in Arsinoe and shipped onwards to the harbour at Ptolemais Hormou, AD 42 (in <i>artabas</i>)	179
6.2. Deliveries of <i>artabas</i> of grain by animal convoy, for loading onto river boats, AD 127	187
6.3. Nile ship capacities: stated burden and actual loadings with grain cargoes, late third century AD	196
12.1. Guide to the distribution of imports in the second century AD	367
13.1. Distribution of prices on the lead tags from Siscia (including only those prices where the reading is certain)	409
13.2. Probable interpretation of prices where the reading is uncertain	411
13.3. Prices in the older inscriptions still legible on the tags	412
17.1. Attestation of <i>μαρσίππια</i> in <i>O. Berenike</i>	564

List of Contributors

Colin Adams, Senior Lecturer in Ancient History, University of Liverpool. His research interests are the social, administrative, and economic history of the Roman Empire, especially Roman Egypt, and transport and travel in the ancient world. Publications include *Travel and Geography in the Roman Empire* (ed. with R. Laurence, London, 2001), and *Land Transport in Roman Egypt: A Study of Administration and Economics in a Roman Province* (Oxford, 2007).

Michel Bonifay, Researcher at the Centre Camille Jullian (Aix Marseille Université, CNRS, MCC, INRAP, CCJ, UMR 7299, 13094, Aix-en-Provence, France). His main activity focuses on the pottery of the Roman provinces of Africa: production, typology and chronology, distribution, and the significance of this evidence for the economic history of the Mediterranean. Recent publications on this topic include: *Études sur la céramique romaine tardive d'Afrique* (Oxford, 2004), *LRCW2, Late Roman Coarse Wares, Cooking Wares and Amphorae in the Mediterranean, Archaeology and Archaeometry* (ed. with J.-Chr. Trégliat, Oxford 2007), *LRFW 1, Late Roman Fine Wares: Solving Problems of Typology and Chronology* (ed. with M. A. Cau and P. Reynolds, Oxford 2011).

Alan Bowman, Former Principal of Brasenose College, and Camden Professor Emeritus of Ancient History, University of Oxford. His areas of research are the social and economic history of the Roman Empire, Ptolemaic and Roman Egypt, papyrology and the Vindolanda writing-tablets. Publications include *Agriculture in Egypt from Pharaonic to Modern Times* (ed. with E. Rogan, London, 1999), *Life and Letters on the Roman Frontier: Vindolanda and its People* (London, rev. edn, 2003), *Quantifying the Roman Economy: Methods and Problems* (ed. with A. I. Wilson, Oxford, 2009), *Settlement, Urbanization and Population* (ed. with A. I. Wilson, Oxford, 2011), and *The Roman Agricultural Economy: Organization, Investment, and Production* (ed. with A. I. Wilson, Oxford, 2013).

Barbara Davidde, Director of the Nucleo per gli Interventi di Archeologia Subacquea, Istituto Superiore per la Conservazione ed il Restauro (Rome, Italy) and adjunct Professor of Underwater Archaeology, Università degli Studi di Roma Tre. She was co-director of the Underwater Archaeological Mission in the Republic of Yemen for ISIAO and of the underwater surveys at Sumhuram (Khor Rori, Sultanate of Oman) with the University of Pisa. Her research interests include underwater and coastal archaeology field survey,

and conservation and restoration of underwater cultural heritage (ISCR's Project Restoring Underwater). Recent publications include: *Archeologia sott'acqua: Teoria e pratica* (with Roberto Petriaggi, Pisa and Rome, 2007); (with S. Ricci et al.), 'Marine Bioerosion of Stone Artefacts Preserved in the Museo Archeologico dei Campi Flegrei, in the Castle of Baia (Naples)', *AMM* 7 (2010), 75–115.

Danièle Foy, Directeur de recherches, CNRS, Centre Camille Jullian, Aix-en-Provence. Her research focuses on glass-making from antiquity to the end of the medieval period in the western and eastern Mediterranean, studying production, exchange, and consumption of glass through archaeological evidence (excavations of workshops, residential buildings, wrecks, and studies of the glass assemblages) and archaeometric data. Recent research has treated the stamps applied to ancient glass containers (*Corpus des signatures et marques sur verres antiques*, ed. with M.-D. Nenna, 3 vols, Aix-en-Provence and Lyons, 2006, 2011), and the Islamic glass (seventh to fourteenth centuries) of the Maghreb and Machrek.

Michael Fulford, Professor of Archaeology, University of Reading. His areas of research are Roman urbanism and rural settlement, economy, trade, and technology. Recent publications include *Life and Labour in Late Roman Silchester: Excavations in Insula IX since 1997* (London, 2006), *Iron Age and Romano-British Settlements and Landscapes of Salisbury Plain* (Salisbury, 2006), *Silchester: City in Transition. The Mid-Roman Occupation of Insula IX c. AD 125–250/300. A Report on Excavations Undertaken since 1997* (London 2011), *Pevensey Castle, Sussex. Excavations in the Roman Fort and Medieval Keep, 1993–95* (Salisbury 2011).

David F. Graf, Professor of Ancient History at the University of Miami. His research interests are in the history and archaeology of the Greco-Roman Near East. He has participated in excavations at Zeugma on the Euphrates in Turkey and the Red Sea in Egypt, and recently directed the Hellenistic Petra Project in Jordan (2004–7) and the joint Saudi–American excavations at Jurash in the south-west Asir Province of Saudi Arabia (2008–9). Publications include *Rome and the Arabian Frontier: From the Nabataeans to the Saracens* (1997), and essays on 'Nabataean Trade' in G. Markoe (ed.), *Petra Rediscovered* (New York, 2003), and 'Rome and China: Some Frontier Comparisons', in Z. Visy (ed.), *Roman Frontier Studies XIX* (Pécs, 2005).

William V. Harris, Shepherd Professor of History and Director of the Center for the Ancient Mediterranean at Columbia University, USA. His recent publications include *The Monetary Systems of the Greeks and Romans* (ed., Oxford, 2008), *Maritime Technology in the Ancient Economy: Ship-Design and Navigation* (co-edited with Kristine Iara, Portsmouth, RI, 2011) and *Rome's Imperial Economy* (Oxford, 2011).

Philip Kay, Supernumerary Fellow, Wolfson College, University of Oxford. His research interests include the economy of the Roman Republic and ancient banking. Publications include his monograph *Rome's Economic Revolution* (Oxford Studies on the Roman Economy, Oxford, 2014) and a paper entitled 'What Did the Attalids ever Do for us? A View from the *aerarium*', in *Attalid Asia Minor: Money, International Relations, and the State* (ed. P. Thonemann, Oxford, 2013). In addition to his academic work, he also runs his own investment management business.

Elio Lo Cascio, Professor of Roman History, Università di Roma 'La Sapienza'. His main areas of research are the institutional, administrative, and economic history of Rome, and Roman population history. His publications include *Il princeps e il suo impero: Studi di storia amministrativa e finanziaria romana* (Bari, 2000); *Crescita e declino: Studi di storia dell'economia romana* (Rome, 2009); and the edited volumes *Roma imperiale: Una metropoli antica* (Rome, 2000); *Production and Public Powers in Antiquity* (Cambridge 2000, with D. W. Rathbone); *Credito e moneta nel mondo romano* (Bari, 2003); *Innovazione tecnica e progresso economico nel mondo romano* (Bari, 2006); *Agricoltura e scambi nell'Italia repubblicana* (Bari, 2009, with J. Carlsen).

Dario Nappo, postdoctoral researcher, Ciències de l'Antiguitat i de l'Edat Mitjana, Universitat Autònoma de Barcelona. His research has focused on Roman trade with India and in the Red Sea region, and his publications include 'Roman Policy in the Red Sea between Anastasius and Justinian', in *Connected Hinterlands: Proceedings of the Fourth International Conference on the Peoples of the Red Sea Region* (ed. L. Blue, J. Cooper, R. Thomas, and J. Whitewright, 2009), and 'On the Location of Leuke Kome' (*JRA* 23/1 (2010), 335–48).

Emanuele Papi, Professor of Classical Archaeology at the University of Siena, and Director of the Scuola Archeologica Italiana di Atene. His research interests include the archaeology of trade and commercial activity in Rome and around the Mediterranean, and he has directed excavations at Bomarzo (ancient Statonia) in the Tiber Valley, Thamusida in Morocco, Hephaestia on Lemnos, and Dionysias in Egypt. His publications include *Supplying Rome and the Empire* (*JRA Supplement* 69, 2007), and *Sidi Ali ben Ahmed—Thamusida* (ed. with A. Akerraz, 3 vols, 2008–13).

Ivan Radman-Livaja, senior curator at the Greek and Roman Department of the Archaeological Museum in Zagreb. His research interests mostly concern the archaeology of Roman Pannonia, more particularly the *limes* area, Roman army and military equipment studies, epigraphy, as well as Roman trade and economy. His publications include *Militaria Sisciensia* (Zagreb, 2005) and *Finds of the Roman Military Equipment in Croatia* (ed., Zagreb, 2010).

Paul Reynolds, ICREA Research Professor, ERAAUB, Department of History and Archaeology, University of Barcelona; and Institució Catalana de Recerca i Estudis Avançats (ICREA). His work focuses on the reconstruction and interpretation of Mediterranean trade and economic history based primarily on the archaeological evidence for the regional and long-distance distribution of ceramics (tablewares, amphorae, and kitchen wares). His current responsibilities include the publication of the classical pottery of excavations in Beirut, Butrint, Carthage, and Nikopolis-Actium, as well as the Roman Imperial amphorae of the Athenian Agora. His publications include *Settlement and Pottery in the Vinolopó Valley (Alicante, Spain): AD 400–700* (BAR International Series 588, Oxford, 1993), *Trade in the Western Mediterranean, AD 400–700: The Ceramic Evidence* (BAR International Series 604, Oxford 1995), ‘Linear Typologies and Ceramic Evolution’, *Facta*, 2 (2008), 61–87, and *Hispania and the Roman Mediterranean, AD 100–700: Ceramics and Trade* (London, 2010).

Ben Russell, Lecturer in Classical Archaeology, University of Edinburgh. His research focuses on Roman sculpture and architecture, especially the supply and production of materials, artistic techniques, the sarcophagus trade, and the logistics of building. Recent publications include his monograph, *The Stone Trade and the Roman Imperial Economy* (Oxford Studies on the Roman Economy, Oxford, 2013), and chapters on ‘The Roman Sarcophagus “Industry”: A Reconsideration’, in J. Elsner and J. Huskinson (eds), *Life, Death and Representation: Some New Work on Roman Sarcophagi* (Berlin and New York, 2011) and ‘*Lapis transmarinus*: Stone-Carrying Ships and the Maritime Distribution of Stone in the Roman Empire’, in D. J. Robinson and A. I. Wilson (eds), *Maritime Archaeology and Ancient Trade in the Mediterranean* (Oxford, 2011).

Boudewijn Sirks, Regius Professor of Civil Law, Emeritus, University of Oxford. His area of research is primarily Roman law from antiquity till modern times, including Byzantine law, and further social and economic history as well as papyrology in as far as it is related to (Roman) law. Publications include *Food for Rome: The Legal Structure of the Transportation and Processing of Supplies for the Imperial Distributions in Rome and Constantinople* (Amsterdam 1991; repr. ’s-Gravenhage, 2010); (with P. J. Sijpesteijn and K. A. Worp) *Ein frühbyzantinisches Szenario für die Amtswechselung in der Sitionie. Die griechischen Papyri aus Pommersfelden (PPG) mit einem Anhang über: Die Pommersfeldener Digestenfragmente und die Digestenüberlieferung* (Munich 1996); (ed. with Jean-Jacques Aubert) *Speculum Iuris: Roman Law as a Reflection of Social and Economic Life in Antiquity* (Ann Arbor, 2002); *The Theodosian Code: A Study* (Friedrichsdorf, 2007).

Roberta Tomber, Visiting Researcher in the Department of Scientific Research at the British Museum. Her research interests are in the Roman economy of the

Mediterranean and Indian Ocean as evidenced through material culture. She specializes in ceramics and their scientific characterization, and has worked as a pottery specialist for excavations at major trade ports in Egypt, South Arabia, and India. Recent publications include *Indo-Roman Trade: From Pots to Pepper* (London, 2008), and (with R. Thomas) 'Pottery from the Lake Mareotis Research Project', in L. Blue and E. Khalil (eds), *A Multidisciplinary Approach to Alexandria's Economic Past: The Lake Mareotis Research Project* (Oxford, 2011).

Andrew Wilson, Professor of the Archaeology of the Roman Empire, University of Oxford. His research interests include the economy of the Roman Empire, ancient technology, ancient water supply and usage, Roman North Africa, and archaeological field survey. Recent publications include: *Maritime Archaeology and Ancient Trade in the Mediterranean* (ed. with D. J. Robinson, Oxford 2011), *Settlement, Urbanization and Population* (ed. with A. K. Bowman, Oxford, 2011), *The Roman Agricultural Economy: Organization, Investment, and Production* (ed. with A. K. Bowman, Oxford, 2013), *Urban craftsmen and traders in the Roman world* (ed. with M. Flohr, Oxford, 2016), and *The economy of Pompeii* (ed. with M. Flohr, Oxford, 2017).

1

Introduction

Trade, Commerce, and the State

Andrew Wilson and Alan Bowman

[The emperor Trajan] who, by his authority, advice, and loyalty has opened up roads, provided harbours, given routes to the land, let the sea into the shore, and extended the shore out to sea, and has mixed different peoples by trade to such an extent that whatever is produced anywhere seems to have originated among everyone.

(Pliny, *Pan.* 29.2–3)

And here the merchant vessels come carrying these many products from all regions in every season and at every equinox, so that the city appears a kind of common emporium of the world. Cargoes from India and if you will, even from Arabia the Blest, one can see in such numbers as to surmise that in those lands the trees will have been stripped bare and the inhabitants of these lands, if they need anything, must come here and beg for a share of their own. Again one can see the Babylonian garments and ornaments from the barbarian country beyond arriving in greater quantity and with more ease than if shippers from Naxos or from Cythnos, bearing something from those islands, had but to enter the port of Athens. Your farms are Egypt, Sicily and the civilized part of Africa. Arrivals and departures by sea never cease, so that the wonder is, not that the harbour has insufficient space for merchant vessels, but that even the sea has enough, <if> it really does.

(Aelius Aristides, *To Rome* 11–13, trans. Oliver 1953: 896)

There is one continent, one sea, the islands common to all, the harbours opened up and the gates thrown wide. Merchant ships everywhere convey products from all parts and crowd the anchorages. A mutual community has extended through practically all the land under the sun, with some travelling for exploration and others for other reasons, some who cross

oceans and others who traverse the continent. Dwellers in the West are observers of the wonders of the Nile while the inhabitants by the Nile gain knowledge of the beauties of the West. There are Phoenicians in the anchorages of Sicily, and Sicilians in turn in the harbours of Phoenicia. The city of Athens has been opened up to the traffickers in logic, and the nation of the Bithynians has become accessible to those desirous to take whatever they want.

(Libanius, *Oration* 59.171, trans. Dodgeon, Vermes, and Lieu, in Lieu and Montserrat 1996: 204)

Despite their avowedly Rome-centred view, emphasizing the consumer megapolis, Pliny and Aristides convey a vivid impression of the scale and importance of long-distance trade at the high point of Rome's imperial power and of the state support that underpinned it. Equally striking is the fact that in the later fourth century AD, when, in many people's eyes, the Empire had passed beyond its climax of power and prosperity, Libanius depicted the Mediterranean as a vast and well-connected market, in which the ubiquity of maritime trade encouraged not only the long-distance movement of merchants and their goods, but also other travellers, and even generated almost a common market in trade, travel, and ideas. Not quite two centuries later, Cosmas Indicopleustes in his *Christian Topography* went so far as to state that God had designed the world expressly to facilitate maritime trade: 'He [God] also so prepared the gulfs that they could be navigated and afford a means of transit to different parts of the world, thus always uniting the dispersed nations in the bonds of amity through the facility with which commodities might be transported from nation to nation.'¹ The notion of 'connectivity' has become part of the accepted vocabulary in discussing the economic history of the Mediterranean in antiquity since the publication of *The Corrupting Sea* in 2000; Cosmas offers a more benign view than is implied by the title of Horden and Purcell's influential book, but with exactly the same stress on that notion.

All these testimonies emphasize more or less explicitly the political and economic importance of trading links and activities within and beyond the boundaries of the Empire, even if they offer us no broad programmatic statements about 'economic policy'. In this volume, we approach the subject from the point of view that the state was very actively and self-consciously involved in this aspect of empire.

One crucial prop on which this approach relies is the fact that scholarship on the nature, scale, and importance of ancient trade has changed radically since the 1970s, not least because of the massive increase in the quantity of archaeological evidence that has become available to us. In the mid-twentieth century, A. H. M. Jones believed that trade in the Roman world was relatively

¹ Cosmas Indicopleustes, *Christian Topography*, book 3, trans. McCrindle (1897: 101).

insignificant because of the cost of transport and the limited purchasing power of most rural and urban dwellers.² He and many others thought that the overwhelming majority of economic activity, perhaps over 80 per cent, in the ancient world lay in the agricultural sector, with trade being very much a secondary activity, and by some distance.³ Moses Finley thought that such long-distance trade as there was in the ancient world was a trade in luxury goods, small in scale and aimed at a narrow elite, not a bulk trade in staples.⁴ Traders were of low status;⁵ elites were not involved in trade, as money came from agriculture; and trade was not a large, or even a significant, component of the ancient economy.

At first sight, it is striking that even in the middle of the twentieth century such views were still held by prominent scholars, despite the testimony of ancient authors. Rostovtzeff's *Social and Economic History of the Roman Empire* was, for many people, the most powerful, original and compelling work on Roman history in the twentieth century and was first published in 1926 (issued in a revised edition in 1957). Rostovtzeff certainly did not take a minimalist view of the importance of trade, even if his arguments about the nature and decline of the urban 'bourgeoisie' failed to win favour. Tenney Frank's *Economic Survey of Ancient Rome*, a product of North American historical empiricism, was published in the 1930s and amassed a great deal of economic data that can hardly fail to take us far beyond any simplistic notion of subsistence agriculture as the core of the ancient economy. Part of the explanation may be that in the mid-twentieth century 'economic history' was too little espoused by ancient historians generally, perhaps partly because it smacked of radical political views or 'economic determinism'. On the positive side, the huge increase in archaeological evidence in the second half of the twentieth century has induced ancient historians to direct attention to cliometric work more effectively than had previously been possible. It may also be relevant that too little had been done to emphasize the economic role of coinage and money (perhaps still the case, with honourable exceptions such as Howgego),⁶ but it is nevertheless difficult to see how scholars who recognized the enormous wealth and the conspicuous consumption of the great land-owners of the ancient Mediterranean world (the permanent basis of whose wealth was admittedly landed property) could have failed to emphasize and analyse the essential role of trade and commerce in the process of realizing that wealth through agricultural production and sale of surpluses.⁷

² Jones (1974: 37–9).

³ Jones (1974: 36–7; cf. 83).

⁴ Finley (1973; 1985).

⁵ Finley (1973: 59–60).

⁶ Jones (1956) offers a pessimistic view, frequently endorsed. Contrast Howgego (1992; 1994; 1995; 2013).

⁷ See Marzano (2007); Bowman and Wilson (2013).

Over the last two decades of the twentieth century the Finley-Jones 'new orthodoxy' (as Hopkins called it) was eroded and eventually broken up. Hopkins in a series of papers advanced the argument that taxation by the Roman state encouraged even small-scale agriculturalists to produce a surplus for sale so that they could pay their taxes.⁸ Horden and Purcell's *The Corrupting Sea* dealt the final blow to the notion that the sameness of Mediterranean agriculture made long-distance trade unnecessary, pointing to the variegated microclimates of the Mediterranean whose different rhythms of glut and shortfall set up endlessly shifting constellations of supply and demand, actively necessitating long-distance trade between regions to overcome varying patterns of shortage.⁹ The growing recognition of the significance of the archaeological evidence for trade was fundamental in this shift of viewpoint—but it has been a remarkably slow process.¹⁰ More recent work has argued or accepted that bulk long-distance trade was normal, regular, and sustained not only in luxuries but also in staples and a wide range of commodities and manufactured goods throughout the Roman period.¹¹ Demonstration of the depth of monetization in the economy in both urban and rural contexts has underlined the fact that the commercial tools and institutions were available,¹² and there was a degree of economic rationalism in an overwhelmingly dominant agricultural context (even in terms of long-distance trade).¹³ The notion of Roman elite contempt for trade and commerce has been shown to be little more than a veneer or a cliché.¹⁴ There have still been occasional dissenting voices that have emphasized, perhaps even overemphasized, what might seem to be more 'primitive' characteristics of economic behaviour and institutions—Peter Bang,¹⁵ for example, although his book *The Roman Bazaar* has not found favour with some economic historians,¹⁶ and is oddly out of touch with archaeological work.¹⁷ As for the archaeological evidence itself, there are still

⁸ Hopkins (1980; 1983a; b; 2000; 2002).

⁹ Horden and Purcell (2000).

¹⁰ Important contributions in changing opinion include Carandini (1983); Pucci (1983); Tchernia (1983); Greene (1986); Fulford (1987; 1989). The launch of the *Journal of Roman Archaeology* in 1988 was also a landmark, facilitating a flow of important articles marshalling the archaeological evidence to address big historical questions of trade, starting with Mattingly (1988a) on olive oil. See also Harris (1993).

¹¹ Scheidel, Morris, and Saller (2007); Morley (2007b); Tchernia (2011); Wilson (2011a; b).

¹² Howgego (1992; 2013).

¹³ Rathbone (1991; 1994), *contra* Kehoe (1993).

¹⁴ D'Arms (1981); but see Tchernia (2011; 2016) for a more complex and nuanced view of elite involvement in trade.

¹⁵ Bang (2007; 2008). Bang (2012) is more useful.

¹⁶ See, e.g. reviews by Silver (2009) and Temin (2009).

¹⁷ In particular, in its discussion of maritime trade (Bang 2008: 141–2), its failure to appreciate the significance of the distribution and quantities of traded archaeological artefacts, and the fact that it does not take account of the fact that the Roman villa system, the characteristically Roman manner of organizing much of the Empire's agricultural exploitation was deliberately geared towards market-oriented surplus production and export.

some who doubt that its accumulation is sufficient to impact meaningfully on Finley's position,¹⁸ a view with which we fundamentally disagree.

The question of ancient trade is important because the availability of non-local goods and resources may have a dramatic effect on the nature and quality of everyday life, and on the range of material culture of a society (the vexed discussions of 'Romanization' or even attempts to argue for an early 'globalization' in the Roman period all stem from the realization that a very similar package of material goods and technology—pottery, glassware, millstones, jewellery, and dress—is found across the Roman world); and also because of the potential importance of customs revenue to the state, a question to which we will return. Moreover, as Libanius pointed out, other influences were also carried along trade routes; not only cultural, as people discovered common tastes for the same material goods, but also the spread of ideas, technologies, religions, and philosophies ('the traffickers in logic')—and diseases too. While the Antonine Plague (smallpox?) was brought to the Roman Empire by armies returning from Parthia, its devastating spread around the Empire was certainly facilitated by the high degree of connectivity along trade routes. The Justinianic outbreak of bubonic plague, apparently brought to the Mediterranean from the east coast of Africa or even India, is first recorded at the port of Pelusium in the north-eastern Nile delta. That would be entirely consistent with the presence of the rats that carried the fleas with *Yersinia pestis* arriving on ships sailing along Trajan's canal to the Nile from Clysma at the head of the Red Sea.¹⁹ Its rapid spread to Constantinople and around the Byzantine empire was undoubtedly facilitated by the ships of the grain fleet sailing from Alexandria to Constantinople, and by other intensively used maritime trade routes.²⁰

Broadly speaking, Roman archaeologists and most ancient historians would now agree that Mediterranean trade increased during the Hellenistic period to reach a peak under the Roman Empire, sustained until at least the end of the second century AD, when long-distance trade was abundant, even in agricultural staples and in such apparently low-cost items as pottery cooking vessels.²¹ This increase in the scale, reach, and intensity of long-distance trade was facilitated by the bringing of the circum-Mediterranean region under unified political control, at least until the third century, and the resultant institutional factors, including the *pax Romana*, the adoption of a common or at least integrated currency for much of the region (with the qualified

¹⁸ Wallace-Hadrill (2014: 584).

¹⁹ On the Antonine Plague, see, e.g. the various papers in: Lo Cascio (2012). Justinianic Plague: McCormick (2003); Little (2006); Bos et al. (2012); Harbeck et al. (2013).

²⁰ McCormick (1998; 2003).

²¹ E.g. Mattingly (1988a; b); Jongman (2007a; b); Morley (2007a; b); papers in Robinson and Wilson (2011); Wilson (2009; 2011b); Wilson et al. (2012). Trade in North African cooking wares: Leitch (2011; 2013).

exception of Egypt²²), an increasingly unified (integrated?) legal framework; and state investment in transport infrastructure such as roads and harbours. Technological improvements, especially in shipping and in container technology (the use of amphorae with better volume-to-weight ratios, and a gradual shift over time from amphorae towards barrels), to some extent reduced the costs of long-distance and especially maritime trade;²³ and increased demand began to encourage mass production of certain goods.²⁴ The existence of these phenomena is relatively uncontroversial—what needs further analysis and nuance is the balance between the various factors and the scale of their spread and operation. For example, the accretion of new archaeological evidence may help us to understand why production of particular goods and artefacts remained relatively local and small scale in some places and periods while striking instances of intensive production and wide distribution occur in contexts where the determining factors (such as major transport arteries or specific raw materials) are not so obvious.

The present volume recognizes that the debates of the 1980s and 1990s over the extent and normality of long-distance trade in the Roman Empire may appear to have been largely resolved, but asserts that questions of both economic structure and performance remain, some new, some still not satisfactorily answered (despite the recent proliferation of thematic volumes on Roman economic history²⁵). The structural questions would include: how far are we talking about a market economy?²⁶ What impact did the state have on distribution—by distorting or creating large trade flows, either by bulk requisition or by purchase, for the *annona* or for military supply? Or by the creation and provision of infrastructure (roads, harbours), or institutional incentives? In keeping with the agenda of this series of volumes, and the research programme from which they emerged, we propose an attempt to quantify economic performance further by analysing the complementary bodies of documentary and archaeological evidence, with attention to change and diversity over space and time.

TRADE AND THE STATE

The chapters in this volume are grouped in three parts. Many of the major institutional factors are discussed in the first part: taxation by Alan Bowman

²² For Egypt, see Burnett (2005).

²³ Wilson (2011a); for slightly differing views on the significance of this, see Scheidel (2011) and Wilson (2011b).

²⁴ Wilson (2008).

²⁵ Scheidel, Morris, and Saller (2007); Bowman and Wilson (2009b); Scheidel (2012).

²⁶ E.g. Bang (2008) vs. Temin (2013).

(Chapter 2); the legal structures by Boudewijn Sirks (Chapter 3); market regulation and transaction costs by Elio Lo Cascio (Chapter 4); Republican financial institutions by Philip Kay (Chapter 5). A picture begins to emerge of heavy state involvement in establishing institutional frameworks conducive to trade, including provision of transport infrastructure,²⁷ and, notably, interventions in the market to distort flows of particular goods, whether staples such as grain or olive oil, or luxuries such as marble, to particular concentrations of demands, principally Rome and the army garrisons (which is in effect a restatement of some of the important features of Hopkins's 'taxes-and-trade' hypothesis). But this seems to have been done by the engagement of private contractors, in a way that stimulated private trade on the back of it: Colin Adams's chapter points out the incentives or subsidies of carrying a private cargo as a supplement to a state cargo, and thus how the imbrication of state and private transport subsidized private trade. And there was a lot—an awful lot, for a pre-industrial world—of private, open market trade outside the state-affected sector. The state took some care to protect the functioning of those markets.

The institutional framework was one in which peace, laws, a common currency, and certain incentives to engagement of shippers and merchants in trade that would benefit the state can all be seen to have a positive, if not entirely straightforward, effect, affecting the transaction costs of trade at all levels. A healthy trading sector was essential for the Roman state for several crucial reasons: it guaranteed military supply—and therefore physical control—by a combination of direct requisitions, subsidized purchase, and private trade; it assured the food supply of major cities, especially Rome, which could not be fed from their immediate hinterlands, in order to prevent unrest; although not always openly acknowledged, it underpinned the political and economic power of the elites, as well as a lifestyle that was more often than not conspicuously indulgent, and this, in turn, determined the political character of the Empire in which urbanization was such an important factor. Moreover, the customs dues from trade—local, inter-provincial, and external—could be considerable and were organized in a very sophisticated fashion, a fact whose significance has only recently begun to be appreciated. The institutional framework and the physical infrastructure developed and maintained by the Roman state encouraged the interplay between urban and rural areas and relied on the participation of the landholding elites. This contrasts strikingly with the situation in late medieval/early modern Europe.²⁸

²⁷ Wilson (2011a: 46–53).

²⁸ See, e.g. Blockmans (1989: 740–1) on medieval cities: 'the early commercial cities had to provide for a number of essential arrangements for their trade and industry, which the surrounding feudal society could not and would not provide. Fundamentally, that society remained hostile to the cities and their activities, which therefore needed protection. The security of roads, the quick and reliable settlement of disputes between sellers and buyers, the supervision of exchange values, the freedom from tolls and arbitrary seizure: these fundamental pre-conditions

However, in this volume, we avoid any attempt to characterize the Roman imperial economy in very broad terms—as it may be ‘dirigiste’, ‘predatory’, or ‘laissez-faire’—not least because we think that there are elements of all such characteristics present and it may be misleading to privilege one of many strands. We realize that this may provoke criticism. We rather focus on the balance of emphasis in a scenario of ‘give-and-take’ and attempt to quantify what the state contributed to the scale and mode of trading activity and what it took out, and the instruments it used to do that. ‘Predation’ is only one side of the coin; and state predation and banditry are very different. A state needs to give something in return, if its rule is to be deemed tolerable; and we are interested in what the Roman state contributed, in return for customs revenue extracted, by way of peace, protection, institutions, and physical infrastructure. It should be noted that, although there is, in the history of Roman imperial expansion, an implicit consciousness that overall the costs of acquiring and controlling territory should not exceed the benefits of revenue derived from it,²⁹ there is no direct evidence for explicit ‘budgeting’ on such a macroeconomic scale until the later period (after AD 300, when it was part of the responsibility of the praetorian prefecture).

The infrastructural elements contributed by the state will include: the military peacekeeping presence accompanied by the creation and growth of social and economic communities, the monetary and commercial instruments, the legal framework that governed modes of economic behaviour (contracts and so on), and the physical structures—ports, harbours, and other commercial/industrial establishments (though the balance between state and private investment is uncertain in the latter), and transportation networks (very often closely linked to the military infrastructure).

If we look at the picture from a different perspective, the state-supported infrastructure enabled the extraction of increased revenues and taxes, direct (for example, land and capitation taxes) and indirect (customs duties, taxes on trades and ‘industry’), needed for state expenditure on military institutions and infrastructural facilities. Evidently, the top-slicing of increasing wealth in the form of revenue extraction could be and was used also to finance the lifestyle of the elites and the urban communities, supplemented by the

for any regular trade had to be created by the merchants themselves because no other authority was competent and willing to do it. What later became the fields of interstate diplomatic relations, royal coinage prerogatives, and monarchical jurisdictions, were primarily shaped by merchants’ networks in the time when no prince had the possibility or the vision to provide for these typically urban needs.’

²⁹ E.g. Strabo’s comment that Augustus did not conquer Britain because ‘it seems that at present more revenue is derived from the duty on their commerce than the tribute could bring in, if we deduct the expense involved in the maintenance of an army for the purpose of guarding the island and collecting the tribute; and the unprofitableness of an occupation would be still greater in the case of the other islands about Britain’ (2.5.8, Loeb translation; see also 4.5.3).

willingness of those elites to augment through benefaction and euergetism. As that balance changed and trade shrank (arguably) after AD 200 with the consequent reduction of the flow of revenue to the state, the growing demands of the military establishment and the civil bureaucracy severely distorted the pattern of relative prosperity and, consequently, the political and economic structures of the state. That would serve as an admittedly oversimplified statement of a standard approach to the ‘decline’ of the Empire. From our point of view in this volume, one key question is whether the analysis of the various bodies of quantifiable evidence supports it.

LONG-DISTANCE TRADE WITHIN THE EMPIRE

The contributors to the second and third parts of this volume concentrate on internal and external (long-distance) trade, respectively. This book does not contain a chapter specifically on maritime trade, although its importance is implicit in many of the contributions. Maritime archaeology and maritime trade have been the subject of a large number of recent publications, to which the reader is referred;³⁰ in particular, one should note the archaeologically supported emerging consensus that organized, directed long-distance trade between emporia, supplemented by more local trade in the coastal forelands of those emporia, was of far greater significance in the Roman world than was coastal tramping.³¹ Among the underlying questions of economic performance, we include: how widely available were different kinds of goods, and what determined differences in availability? How successfully did transport infrastructure provision enable goods to be moved, or did high transport costs deter long-distance land movement? The (predominantly archaeological) evidence reviewed in Part II of this book gives the impression that access to resources via long-distance trade corrected some imbalances in natural reserves, for example, in timber (Chapter 7), and that traded goods (glass, Chapter 9; pottery, Chapters 10–12; and metals) were widely and effectively distributed. In normal circumstances, the transport systems, institutional framework, and market concentrations of demand worked pretty well for a pre-industrial society.³² But this needs to be set against anecdotal evidence of

³⁰ E.g. Tchernia (2011; 2016) and the various papers in: Harris and Iara (2011); Robinson and Wilson (2011); Keay (2012).

³¹ Nieto (1997); Morley (2007b: 102); Arnaud (2011); Rice (2011); Wilson (2011a); Boetto (2012); Wilson, Schörle, and Rice (2012).

³² Hitchner (2012: 226–8) contrasts the prosperity of the Drôme (southern France) in the Roman period, when good roads and intensive trade enabled the export of a sweet wine, with the same region in the eighteenth century, when fruit was eaten under the trees by pigs because the roads were so poor it could not be exported to market.

famines that could not be alleviated in time; the system lacked the capacity to do this and was not intended to address such emergencies. Given the slow transport and communication speeds of a pre-industrial world, it took time to organize adequate responses to famine, and sometimes this response time was fatally long; the ability to deal with exceptional crises was low, therefore, even if the system functioned reasonably well in normal circumstances. It is especially striking, and remarked upon by Gregory of Nazianzus in the fourth century, that such disasters particularly affected inland regions that could not be provisioned by sea.³³

As regards internal trade, it is unnecessary to review in detail the arguments of individual contributors on the whole range of particular commodities, but, although much of the evidence for the scale and reach of Roman trade comes from pottery, since that is one of the most archaeologically durable and traceable commodities, several papers in the volume show what can be done with other goods: timber (Harris), glass (Foy), stone (Russell), and even the service industry in cleaning textiles (Radman). We omit here and in the volume generally discussion of those foodstuffs that have been treated extensively elsewhere.³⁴ It is important to note that within the Empire we are dealing with local and with intra-provincial trade, which may show different patterns, depending not least on the modes of transport available. Many of the goods available in urban centres were produced or manufactured in distant places, and were traded in markets alongside local products. The subject of the integration of the market, or markets, has received substantial attention recently, and it is important to remain alert to the possibility of local and provincial differences in this respect and to recognize that there were factors that prevent us from characterizing the trading simply as 'market led' or 'market oriented' (not least the state's need and demand for goods at 'non-market' prices).³⁵ Some comments on two of the commonest categories, ceramics and stone, might be helpfully diagnostic in pointing out key features of trading patterns, which can be tested against other kinds of traded goods.

Ceramics

The chapters on pottery in this book raise the question of how far state involvement in distribution might have enabled pottery to reach markets further afield than market forces alone might have done, and implicitly or

³³ Gregory of Nazianzus *Oration* 43.34–5, referring to Caesarea in Cappadocia (Kayseri); cf. Horden and Purcell (2000: 560) for discussion.

³⁴ E.g. by Rickman (1980); Garnsey (1983); Garnsey and Whittaker (1983); Erdkamp (2001).

³⁵ Markets: Temin (2001; 2013); Thonemann (2013) for a very different view. Cf. Bowman and Wilson (2009a: 24–7).

explicitly invite us to think about price resilience to transport costs. Bonifay's distribution maps of the pottery production sites known in North Africa illustrate the point nicely (Chapter 11). Amphorae, as transport containers for—principally—olive oil, wine, and fish products, are produced at both coastal and inland sites, but especially at coastal sites. Obviously the preparation of salted fish and related products—*garum*, *liquamen*, *allec*, and so on—was coastal, but even for the products of the interior it often made sense to transport them to the coast in skins and bottle them in the more durable but heavier amphorae only when they needed to be exported in ships. Kiln sites producing cooking wares that were exported are, however, exclusively coastal.³⁶ This seems to reflect the relatively low value of cooking wares, whose sale price could not absorb lengthy transport costs from the interior to an export port. This appears to be confirmed by the impressionistic distribution of African cooking wares at coastal sites around the Mediterranean, but not very far inland. For example, African cooking wares are common at Ostia and Portus, but wholly absent further up the Tiber at Chianciano Terme.³⁷

By contrast, African Red Slip ware was produced at inland sites in Tunisia—which has suggested its transport to the coast along with other agricultural produce, principally the grain destined for the *annona*.³⁸ But it must also imply that the sale price, while not necessarily high, was high enough to absorb such overland transport costs. Again, this finds its reflection in the greater penetration of ARS finewares (and indeed earlier finewares too) into inland sites in overseas provinces. The different distributions of finewares and cooking wares confirm what we have long suspected, that finewares cost more than cooking pots. But the very widespread coastal distribution even of cheap African cooking wares underlines the sheer scale of maritime trade and relatively low transport costs, which made it possible for large quantities of cookwares to travel around the Mediterranean by sea.

Fulford's demonstration that the distribution of Gaulish Samian finewares somehow overcomes the friction of distance that would be expected in an entirely free-market scenario is especially significant and opens up a number of intriguing possibilities (Chapter 10). His suggestion that somehow the distribution was being subsidized or assisted through the posting stations or transport services of the *cursus publicus* is in many ways very attractive, and would seem to implicate the state in either the production or the distribution or both. Questions remain, however, as to why the state should bother with the distribution of Samian wares. Unless we want to believe in a benevolent Roman state so concerned for the well-being of its citizens that it took special

³⁶ Leitch (2011).

³⁷ Leitch (2011; 2013).

³⁸ Fentress and Perkins (1988: 209, 13); Bonifay (2003). These authors also argue that the export of ARS to Portus with *annona* grain explains its widespread distribution around the Empire, as it was re-exported from Portus as return cargoes on other shipping.

measures to ensure their access to glossy red table pottery, it is perhaps hard to see why this would be on the state's radar. The distribution pattern cannot be explained simply by a state concern to supply the army; the whole point is that the distribution reaches remote civilian sites too. The alternative explanation would be the argument from competition, and would imply that the market—even in remote rural sites in northern Britain—was sufficiently affluent that consumers could bear the transport costs reflected in the sale price. There was no high-quality Red Slip industry in Britain, so there was no direct competitor; the distribution here could argue that consumers had the resources and were willing to pay for the costs of the long-distance transport of imported wares, as there was no alternative if one wanted red tableware. To what extent might the issue of different distributions for different wares be explicable in terms of trading relations and networks of particular individuals?

Stone

Russell's chapter on the stone trade demonstrates how the state's demand for luxury stones impacted on but coexisted with a private trade, and this is a model also applicable to the movement of some other goods, though the evidence is usually less clear-cut. The bulk of the large stone that was moved very great distances was thus shipped for state architectural projects; but at the same time some found its way onto the private market, and non-state cargoes were also shipped across the Mediterranean, making use of the harbour, loading, and shipping infrastructure already in place. The size of the market for certain kinds of stone artefacts, and especially for honorific statues and for sarcophagi, enabled extensive division of labour. Some of this was geographically separated, with work at the quarries often carried to an advanced stage, producing a somewhat standardized product that could then be finished, perhaps including personalization, by workshops elsewhere. Whether one wishes to see this as production to stock,³⁹ or rather as production for an indefinite market (rather than to particular orders), this indicates not merely a very large market and a degree of affluence reaching some way down society, but also a substantial amount of rationalized organization of systems of mass production of standardized goods in both stone and other materials.⁴⁰ At the same time, the state's demand for exotic stone for major building projects led to its taking a direct role in the organization and provisioning of some of these quarries that went well beyond what the purely economic value of the stone might have justified. The exploitation of granite and porphyry in the Eastern Desert of Egypt was a venture that relied on state infrastructure and demand,

³⁹ As Ward-Perkins did (Dodge and Ward-Perkins 1992: 25–31).

⁴⁰ Wilson (2008); see further on this, Russell (2013).

and was driven by the political capital to be made from employing in state building projects a stone known to be exotic, from distant regions, and very costly and difficult to obtain.⁴¹

TRADE BEYOND THE ROMAN FRONTIERS

As for trade beyond the frontiers, it is striking how little significance has been attributed to it until quite recently, though the authoritative book (for its time) by R. E. M. Wheeler was first published in 1954.⁴² The recent accumulation of archaeological evidence has encouraged a re-evaluation of the scale and value of this trade, but, as will be seen from the contents of this volume, the available evidence focuses our attention on the southern and eastern frontiers (Egypt, Arabia, and India, and the Sahara). While there has been a spate of recent publications on Roman-period trade to the south and east, these have been chiefly concerned to establish the significance of the phenomenon they study, and this external trade has largely been treated separately from more general discussions of Roman trade.⁴³ It is our contention, in fact, that external trade, with the east whether via Palmyra and the Silk Road(s) or with the Arabian peninsula and India, and with (and even across) the Sahara, should be considered not merely as an exotic sideshow, but as a fundamental part of the Roman trade system from the reign of Augustus onward, important not only for the quantities of exotic imports that it introduced, but also for the fiscal revenue that the 25 per cent customs dues yielded; and that this view of eastern trade is reflected in the passage from Aelius Aristides quoted at the beginning of this Introduction.⁴⁴

Much of this new research on Eastern trade derives from important recent archaeological work at Palmyra, on the Egyptian Red Sea ports and the Eastern Desert infrastructure, as well as the west coast of India, which has put more flesh on the bones of the notices of Strabo, Pliny, the *Periplus Maris Erythraei*, and the documentary evidence. Moreover, archaeology now shows that imports from India and Arabia did not just reach the wealthy cities of the Mediterranean heart of the Empire: black pepper (imported from India) has been found in deposits from Oberaden and London, and is mentioned in the

⁴¹ Cf. Tomber, Chapter 16, this volume.

⁴² Wheeler (1954).

⁴³ E.g. (a few examples of many), for eastern trade in general: Young (2001); McLaughlin (2010; 2014). Silk Road: Giuliani et al. (2000); Hill (2009). Indian Ocean and Red Sea trade: Seland (2007; 2010; 2012); Tomber (2008); Morelli (2011); Sidebotham (2011); Van der Veen (2011); Agius et al. (2012). Saharan trade: Liverani (2000a; b; 2005); Mattingly (2003; 2011); Mattingly and Wilson (2010); Schörle (2012); Wilson (2012); Mattingly et al. (2013); Gliozzo et al. (2014).

⁴⁴ Wilson (2015).

Vindolanda tablets from northern Britain;⁴⁵ and frankincense has been identified in two third-century AD burials from Dorchester, and possibly also in two Roman burials from York.⁴⁶

Renewed study of the so-called Muziris Papyrus emphasizes the economic value of the customs duties derived from this trade.⁴⁷ The papyrus recorded the valuation of (part of) a cargo of ivory and incense from Muziris in India, valued after tax at 1,151 talents 5,852 dr. of silver,⁴⁸ or HS 6,911,852; the customs tax at the 25 per cent rate must therefore have been HS 2,303,951. The goods might also have been liable to further tariffs in the course of their overland and riverine transport through the desert and to Alexandria. Strabo, writing around 150 years earlier, says that 120 ships per year left Myos Hormos for India. Trade by the mid-second century had not declined, as both Tomber's and Nappo's chapters illustrate, and may if anything have increased, but we will probably not overestimate state revenue if we calculate 100 ships per year; with a similar tax revenue per cargo, this would yield 230 million *sestertii* per year as import dues alone, not counting export dues on those 100 ships on their outward voyage, or inter-provincial customs dues on that part of the imports that was not consumed within Egypt but was traded on to other provinces. This makes it very possible that something like one-third of the state's military budget, estimated by Duncan-Jones at 643–704 million *sestertii*,⁴⁹ could have been met from the customs revenues on the Red Sea trade alone.⁵⁰ If that is the case, it suggests that the positive balance of income over expenditure might be greater than previously thought and thus invites reflections on how the state's surpluses might have been used (or sometimes stockpiled?).

The figures provided by the Muziris Papyrus cast in a more credible light the oft-dismissed figures given by Pliny, that the India trade drained the Empire of HS 50 million each year.⁵¹ Pliny's figure (where *sestertii* must be a unit of account rather than actual coins) would imply export dues already levied of c. HS 12.5 million on goods leaving the Empire. Pliny writes about a 100-fold mark-up for the imports, which, if taken literally, would mean a final sale value for this trade of HS 5,000,000,000; but that might be at Rome, and not the import value to Egypt on which the quarter-tax was calculated. To make the figures match even approximately the order of magnitude of the

⁴⁵ Bowman and Thomas (1994: 135 no. 84); Cool (2006: 64); Van der Veen (2011: 44).

⁴⁶ Brettell et al. (2015: 7).

⁴⁷ *P.Vindob.* G 40822. Harrauer and Sijpesteijn (1985); Casson (1990); De Romanis (1998; 2012); Rathbone (2001); Morelli (2011).

⁴⁸ This is the most recent reading; Morelli (2011: 214) and followed by De Romanis (2012). The initial reading, in the *editio princeps* by Harrauer and Sijpesteijn (1985), was 1,154 talents 2,852 dr. of silver, or HS 6,926,852.

⁴⁹ Duncan-Jones (1994: 36, table 3.3).

⁵⁰ Wilson (2015).

⁵¹ Pliny, *NH* 6.101.

calculation just essayed for the Muziris Papyrus, we would need to suppose that the cost of goods had increased tenfold between India and the Red Sea, and tenfold again between the Red Sea and Rome; we might in such a case be talking of a value of goods imported to Egypt of HS 500 million, on which a 25 per cent customs levy would be HS 125 million. These figures are imprecise and inevitably speculative extrapolations from the few data we have, but they do suggest that Pliny's figure is not beyond the bounds of possibility. Dario Nappo's chapter explores some of their implications, and the practicalities of exporting silver and gold coins to India in order to pay for the imports.

Given the sums involved, it is perhaps unsurprising that there is evidence that the imperial *familia* of freedmen and slaves (the *Caesariani*) was involved in this trade;⁵² and that the Roman state invested in infrastructure for it (summarized in Roberta Tomber's chapter): in the first century AD, cleared roads across the Eastern Desert, with forts and watering points, from the Nile to the ports of Myos Hormos and Berenike; in the reign of Trajan, a canal linking Cairo to Clysma at the head of the Red Sea, and, under Hadrian, the Via Nova Hadriana, which ran from Antinoopolis to the Red Sea and down along the coast to Berenike.⁵³ For at least two or three decades in the first half of the second century AD a naval detachment was stationed on the Farasan islands in the southern Red Sea, no doubt to protect merchant shipping against piracy, but also as part of a wider projection of power in the region.⁵⁴ As Tomber points out, though, the investment in roads and forts across the routes linking the Red Sea to the Nile does not seem to have been matched by a similar investment in monumental harbour infrastructure such as one finds at Mediterranean ports. The importance of the protection infrastructure along the routes is underscored by the events of the late third century. During the Palmyrene dominance, after Zenobia and Vaballathus had taken Egypt in 269, the forts along the route from Coptos to Berenike were abandoned and the Blemmyes disrupted much of the Eastern Desert and took Coptos. While Coptos was recovered in 279, the forts do not seem to have been immediately regarrisoned, and several strands of evidence, including the pottery evidence from Berenike, and the evidence of Roman coins in India, suggest that thereafter, while the Red Sea to India trade recovered somewhat, it never fully regained its former level; and that from the fourth century onwards trade between the Red Sea and the Nile did not go across the desert but was routed largely up the Red Sea through the port of Clysma, and Trajan's canal.⁵⁵

Davidde's paper illustrates the role that Arabian ports played in this trade with India and also with the products of Arabia. Qana' was receiving Campanian, Laodicean, and Egyptian wine, and even wine from Spain and the Black Sea.

⁵² Bowman (2010). ⁵³ Speidel (2015); Wilson (2015).

⁵⁴ Villeneuve (2004); Villeneuve, Philipps, and Facey (2004); Speidel (2015: 89–94).

⁵⁵ Young (2001); Wilson (2015).

Some of this was clearly traded in return for frankincense from the interior of Yemen; but some will have been bought for onward shipment to the ports of northern India, and Indian goods would have gone the other way.

Alongside the growing evidence from archaeology for the maritime trade routes with the east, we can now also see the cumulative force of the evidence for overland trade via the Silk Road(s), gathered in the important contribution by David Graf. The Silk Road trade at the Chinese end *originated* epiphenomenally on the practice of state tribute and diplomatic embassies, as tribute in kind and diplomatic gifts were resold by their enterprising recipients. As trade developed along the routes westward and gained its own momentum, its value was harnessed by the state in the form of heavy customs dues.

For trade across the southern frontiers of the Empire, discussed in Chapter 19,⁵⁶ fieldwork in Libya between the late 1990s and 2011 has forced a radical reassessment of the volume and significance of trade into the Sahara, at least via the routes down from Tripolitania to the Garamantes of the Fazzan, on whose settlement sites and in whose cemeteries large quantities of Roman imports have been found.⁵⁷ Roman wine, olive oil, glassware, and pottery were traded for slaves, gemstones (carnelian), probably cotton, and perhaps some gold, from the Flavian period onwards. We lack quantifications for the value of Saharan trade of the kind that we can attempt for the Red Sea trade, and in particular it is unclear whether the excise duties were the same as the 25 per cent charged on the eastern frontiers, although we tend to assume so. Saharan trade in Roman times was doubtless never as lucrative as the trade with India or the distant East, but it is now looking increasingly significant, as a component of the provincial economy of Tripolitania, and the scale of the traffic in slaves could have reached levels comparable with the medieval Saharan slave trade.⁵⁸

It is primarily archaeological research that has led to this comprehensive reassessment of the scale and nature of trade across the Empire's southern and eastern frontiers. By contrast, trade across the northern frontiers of the Empire appears less spectacular—although Strabo reminds us that, before the conquest of Britain, the customs dues on cross-Channel trade were thought to exceed the tribute that could be extracted under direct rule less the costs of occupation of Britain.⁵⁹ The majority of Roman goods found outside the frontiers in Scandinavia are thought to be diplomatic gifts, or booty.⁶⁰ The

⁵⁶ We regret that it has not proved possible to include a contribution from David Mattingly on the Fazzan (Libyan Sahara). His updated treatment of this area will be published in Mattingly, Duckworth, and Sterry (forthcoming). Andrew Wilson has added a chapter on Saharan trade instead.

⁵⁷ Liverani (2000a; b; 2005); Mattingly (2003; 2011); Mattingly and Wilson (2010); Wilson (2012); Mattingly et al. (2013); Gliozzo et al. (2014). See n. 46.

⁵⁸ Wilson (2012: 432–5).

⁵⁹ Strabo, *Geogr.* 2.5.8 and 4.5.3.

⁶⁰ Cf. Grane (2007); Morris (2010); and the various papers in Wells (2013).

relative insignificance of Roman-period trade across the Rhine–Danube frontier is to be explained by similar ecologies to the provinces of northern Europe within the Empire, and the lack of highly urbanized civilizations in Germany, Scandinavia, and points east. Simply put, these people had little that the Romans did not themselves have, and there was little Roman demand for what they could produce.

Thus, once again, the evidence suggests a mixed picture of the development of patterns of trade across the Empire, especially in the third and fourth centuries, and no definitive or widely applicable conclusion about ‘economic collapse’. Clearly the health of external trade, and the intensity of intra-provincial and inter-provincial trade, remained healthier and thus, we suppose, more profitable in the east than the west (where, as time goes by, the quality of goods revealed by archaeological evidence perceptibly declines). But, in the east at least, the state appears, in collaboration with the elite holders of wealth, to have adapted the mechanisms of taxation, both direct and indirect, to support its need for revenue. On the other hand, the price of that collaboration, which was in effect a fiscal partnership, in slightly different forms in east and west, in the longer term fundamentally changed the political character of the Empire.

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Part I

Institutions and the State

The State and the Economy

Fiscality and Taxation

Alan Bowman

INTRODUCTION

In a volume dealing with quantification of trade and commerce, it is clearly essential to pay some attention to the governmental institutions that regulated and affected this major sector of the economy. In the previous volume, Dennis Kehoe discussed the structural role of the state in relation to the agrarian economy and paid particular attention to the extraction of revenues and the management of the land.¹ My discussion in this chapter follows directly from Kehoe's analysis in several respects, with more analysis of the detailed data. It emphasises, also, as has already been stated in these volumes, that we should draw no clear demarcation in the economy between the agrarian and the trade or commercial sector: once we move beyond the basic subsistence level, the agricultural economy obviously cannot function profitably without access to the mechanisms of trade, commerce, and the market. One of the consequences of the state's extraction of revenue from agriculture was, as Kehoe points out, the transfer of resources from agriculture to the other forms of investment. Clearly there were important changes in the revenue-extracting modes and mechanisms over the period covered by the Oxford Roman Economy Project (c.100 BC to AD 350), as there also were in modes of ownership and management of the land.

These are indeed central topics in any consideration of the role of the state in the economy, but they are not the only ones. When we broaden our perspective to consider the realization and the use, for subsistence of the population and well beyond, of the value of the product through access to

¹ Kehoe (2013).

markets and development of patterns of trade, we can try to identify the ways in which the state manipulated economic tools to achieve particular objectives within a fiscal strategy. In other words, we can try to seek an economically rational explanation of the raising and deployment of revenue. It is easy enough to identify specific examples where economic resources are raised and deployed for particular purposes—urban buildings, military supplies, food distributions—or regulated by use of particular mechanisms—coinage manipulation, price control (rarely), incentives for landowners, and so on. There are also episodes that betray or imply a broader understanding of fiscal or economic strategy by the state: Augustus' support for Alexandrian trade, Tiberius' response to the 'crisis of AD 33', Diocletian's Currency Edict and Maximum Price Edict.² It is much harder to weld such specific examples into a general strategy, or indeed to identify what caused such actions at a general level: clearly in part a need to deploy necessary resources in response to scarcity, whether systemic (as is implicit in the 'taxes-and-trade' model) or recurrent, such as famine or crop failure;³ were they more generally a response to demographic change or a cause of it, or a combination where a response from government nudged or changed the direction and pace of such changes?

It is equally hard, if not harder, to bring such specific examples into relation with macroeconomic estimates for the Empire as a whole, with any sense that they are grounded in (a constantly evolving or changing) reality. Examples of such estimates have burgeoned in recent decades and collation reveals some significant differences in magnitude, as the following samples show:

- Money stock at mid-first century AD is 20 billion HS. Annual state expenditure 832–983 million HS c. AD 150, 1462–1613 million HS c. AD 215.⁴
- The army accounts for up to 75 per cent of public expenditure.⁵
- The aggregate income of senators and *equites* is more than the Roman state's income net of army costs.⁶
- Annual income of the *aerarium* under Augustus is 450 million HS.⁷
- Value of Roman metropolitan market is 800/900 million HS per annum.⁸
- Total tax revenues: 900 million HS per annum; 670 million HS rising to 804 million in c. AD 80.⁹
- Average product in mid-first century AD is 380 HS per head.¹⁰

² Suetonius, *Aug.* 98; Tacitus, *Ann.* 6.16–17; Corcoran (2000: ch. 8); Kay, Chapter 5 this volume.

³ Hopkins (1980; 2002). ⁴ Duncan-Jones (1994: 45).

⁵ Lo Cascio (2007). There is very rough agreement that the army cost 450–500 million HS per annum in the mid-first century AD.

⁶ Hopkins (2002). ⁷ Frank (1940: 7). ⁸ Hopkins (2002).

⁹ Higher figure: Hopkins (2002), lower: Duncan-Jones (1994: ch. 3).

¹⁰ Goldsmith (1984).

Several of these estimates are compared and discussed by Scheidel and Friesen in a recent article, in which they offer a new set of estimates and new models of their own, which are all roughly within the parameters suggested by the samples cited here.¹¹

From the perspective of a functional rather than a structural approach to the matter, we can suggest that the main fiscal instruments that the Roman government had at its disposal to affect economic behaviour and performance were, broadly speaking, the currency, taxation, and regulation of markets and that it could achieve the effects through either direct or indirect interventions. In what follows, I have chosen primarily to discuss taxation and to analyse some of the data at our disposal. But we must begin with some comments from a structural perspective, since we cannot ignore the importance and the influence of Hopkins's well-known 'taxes-and-trade model'.¹² This has to be measured against earlier attempts to identify and quantify such phenomena as Gross Domestic Product, weighed against subsequent reaction and counter-arguments, such as those of Duncan-Jones and Howgego, and reassessed in the light of Hopkins's own revision of his model, published some fifteen years later, with the significant insertion of the word 'rents' into the title.¹³ I am not going to attempt a detailed critique here of his main and well-known hypothesis that Roman taxation stimulated trade by forcing those in the more 'productive' provinces to trade in order to earn the money to pay their taxes. Put simply, the role of coin and cash movement and stimulus to trade applied by the government is central to the model. Various criticisms can be and have been levelled. Hopkins would have cheerfully abandoned any claim to accuracy for the figures themselves. Other reasons for trading were perhaps not given enough weight, nor were Roman trading patterns sufficiently contextualized against the pre-existing scenario, and the character of coin circulation is imperfectly understood. A more 'dynamic' model is needed. More discussion is needed of the difference between raising revenue by direct taxation and by management and rental (here, as elsewhere, transaction costs are not sufficiently taken into account). Yet the revised 'broadly developmental' model is still somewhat seductive, and a bulleted summary of its main tenets is a useful starting point from which to address some major issues, including the relationship between trade and state initiatives on taxation, and the nature and the effect of changes over the period of so-called crisis and recovery.

¹¹ Scheidel and Friesen (2009). It is neither necessary nor possible to reproduce their detailed tabulations here. As with many such estimates, they tend, by locating their calculations at a fixed point in time (e.g. mid-second century AD), to offer a synchronic scenario and not to take account of fluctuation and change (as, e.g. in population size in the immediate aftermath of the Antonine Plague).

¹² Hopkins (1980; 2002).

¹³ Duncan-Jones (1990; 1994); Howgego (1992; 1994); Hopkins (2002), with references to earlier criticism.

- The Empire achieved modest though significant economic growth.
- Diffusion of technical innovations was a cause of growth.
- Imposition of prolonged peace cut transaction costs, particularly transport.
- Exaction of rents and taxes for expenditure at some distance from source elongated lines of trade and stimulated increased division of labour and urbanization.

Particularly to be noted, without further detailed analysis at this stage, is the characterization of the Roman imperial economy as a 'low-tax' economy, with levels below c.10 per cent of minimum GDP, 6 per cent of actual.¹⁴ This is based on two fundamental propositions, both of which are extremely fragile. First, that the military budget constituted the bulk of all imperial expenditure (plausible) and that we have a reasonably accurate idea of the size of that budget (much less plausible).¹⁵ Second, that we can estimate a minimum aggregate GDP by multiplying minimum subsistence income by the estimated population of (for example, on the 'low count') c.50 million. In combination, this would produce a budget estimate well below 1 billion HS, against a GDP well above 10 billion HS, and is, I will maintain, an unrealistically low estimate that cannot be defended. The implication of the higher taxation model, which I suggest in what follows, requires us to postulate either a substantially higher increase in government spending or a decrease in the estimate for the total population of the Empire. As will be obvious, my analysis tends to favour the former rather than the latter scenario.

TAXATION

In the structural approach that Hopkins (and others) adopted, a 'brief history of Roman taxation' did not find a place, but it is both revealing and necessary for my approach to provide some such skeletal account as a basis for understanding the historical attitude of the state towards income and expenditure.¹⁶ The early history of Roman taxation has been characterized as the transformation of booty into institutionalized imposts, a tag that goes back to Max Weber.¹⁷ Key early developments in the second century BC focus on the acquisition of the Spanish mines after the Second Punic War and the creation of a prototype taxation 'system' for the province of Asia after the bequest of

¹⁴ Lo Cascio (2007: 623).

¹⁵ See n. 5. Such calculations rely far too simplistically on multiplying pay rates by numbers of personnel on the payroll.

¹⁶ A line of argument that owes more to Duncan-Jones than to Hopkins.

¹⁷ Pleket (1994: 117).

Attalus, the latter preceded by the influx of an enormous amount of booty and indemnity after the treaty of Apamea and again after the Third Macedonian War; all of which effectively released Italy from the need for direct taxation for over 300 years.¹⁸ Another consequence of this influx of wealth was the ability of the state, after 123/2 BC, to support the cost of subsidizing grain to feed the growing urban population of Rome, perhaps with the additional effect, if not implicit purpose, of providing a market for Italian producers in the face of competition from overseas imports.

We know little about the levels and schedules of direct taxation imposed on land and persons in individual provinces; with some variation of mode (for example, tithes in Sicily), it is clear that the method of collection in the Republic through contracts let to companies of *publicani* effectively meant that the difference between what the provincial communities actually paid and what the *aerarium* received went into the pockets of the *publicani*. The imposition of greater central control through provincial governors in the principate, with local collection managed by the communities through appointed officials (liturgists) or local contractors, brought an end to ill-gotten gains of the Roman *publicani*. Although a large proportion of the direct taxes raised, some in cash and some in kind, must have been spent in the provinces where they were raised, thus obscuring the relationship between the total assessment and 'what was sent to Rome', it is difficult to gain any clear idea of tax revenues from any individual province (Egypt excepted), or of adjustments to the assessments (with the rare exception of summary notices in literary or epigraphic sources), or to appreciate whether the central government ever attempted to calculate budgetary needs on an empire-wide basis, despite the known existence of *rationes imperii* under Augustus.¹⁹ If the principle was that the tax assessment on a province should meet the costs of its defence and security, that remained implicit rather than explicit during the principate (an exception is the remark of Strabo 2.5.8 on Britain). As we emerge from the ill-attested third century, it seems that the Diocletianic reforms did implement a variety of changes that embodied a more economically rational system of budgeting and administration for the military and civil expenditure required for the 'public sector'. These are too complex for detailed analysis here and I merely cite the two central features: (a) regularization of exactions for the army and (b) an overhaul of the methods of assessing the taxability of land and persons, using a system of taxable units (*iuga* and *capita*).²⁰

¹⁸ On the development of economic institutions in this period, see Hollander (2007); Kay (2014).

¹⁹ As is demonstrated by Duncan-Jones's rather partial and patchy collection of testimonia. Duncan-Jones (1990: 188–93).

²⁰ Lo Cascio (2005: 175–6).

For the main elements of the imperial tax system in the High Empire,²¹ the work of Duncan-Jones, which I synthesize and paraphrase, forms the basis for an adequate if brief summary.²² The main constituents are:

- direct taxes (*tributum soli*) paid in both cash and kind on privately owned land;
- direct capitation taxes and taxes on persons (*tributum capitis*), principally poll tax but these were augmented by fixed-rate taxes on trades and crafts;²³
- rents on various categories of public land, which are effectively direct revenue;²⁴
- indirect taxes, mainly customs duties, taxes on inheritances, sales, manumissions, and so on;
- military requisitions in cash and in kind (either levied as irregular tax impositions or paid for at below-market rates);
- revenue in kind in the form of public service (*munera* and liturgies).

There are three important infrastructural features to be borne in mind throughout all discussion of the balance and the fiscal effects of taxation.

- The greater proportion of tax raised was on land and some of that but by no means all of it was paid in kind (with much regional variation here); there were also significant money taxes on land, best attested in Egypt but surely not unique.
- Even at the climax of the so-called economic crisis of the third century, there is no reason to think of a great reversion to payment of tax in kind. Currency, though massively debased, continued to circulate, and capitation taxes are recorded as cash payments.²⁵
- Most taxes were paid to the imperial government, but there was a significant (under-emphasized) sector of municipal taxation. This is particularly relevant to my discussion (below) of changes introduced in the Diocletianic period and after.

In the absence of any clear evidence for consistent budgeting or ‘economic policy’, certainly before c. AD 300, it is difficult to calculate overall levels and

²¹ These are taxes paid to the central government; I here exclude municipal or civic taxes, on which see below.

²² Duncan-Jones (1990; 2006); see also Neesen (1980); Brunt (1981/1990a); Rathbone (1993).

²³ Best summarized by Rathbone (1993), and known only in any detail for Egypt.

²⁴ These are often lumped together with tax on privately owned land but I distinguish them here, for reasons explained later in this chapter.

²⁵ BGU I 9 (= WChr. 293), with Wilcken, *APF* 5 (1913), 273–4 (c. AD. 276), recording monthly payments of 8, 12, 16, 24, 36, 60, and 100 dr. for trade taxes at Arsinoe just after Aurelian’s currency reform.

Table 2.1. Tax rates at Karanis, mid-second century AD

Location	Land (<i>aroura</i>)	Tax (<i>artaba</i> /wheat)	Tax rate (<i>artaba/aroura</i>)
Karanis	11,549	54,457	4.7
Horiodeiktia	14,986	67,690	4.5
Total	26,535	122,147	4.6

Source: Bagnall (1985; 2003).

Table 2.2. Tax rates in Egypt, mid-second century AD, dependent villages

Location	Land (<i>aroura</i>)	Tax (<i>artaba</i> /wheat)	Tax rate (<i>artaba/aroura</i>)
Ptolemais Nea	3,924	16,891	4.3
Hiera Nesos	4,061	15,797	3.9

Source: Bagnall (1985; 2003).

total amounts of state revenue.²⁶ It is a significant difficulty that all such estimates are so fragile and open to challenge that they merely stimulate counterarguments and alternative estimates that leave proponents locked into a hermetically sealed debate. Lo Cascio points out that the most commonly cited estimates are in fact not very far apart and that 'tax must have been certainly less, and probably much less, than 10%'.²⁷ In the brief discussion that follows this statement, he adduces several factors that might modify the estimate: an oversimplified view of military expenditure; the need to take account of large areas of tax exemption for Italy and for privileged individuals; the weight of local or municipal taxation, very poorly attested in our sources. These considerations lead him to the proposition that the tax burden was 'fairly low' (not further quantified) and that in the first two centuries of the principate taxation enhanced market exchanges and promoted growth. These two phenomena are central, even if only implicitly, to the analysis that follows in the rest of this chapter. As far as state expenditure is concerned, it needs to be emphasized that, since there was in the Roman Empire to all intents and purposes no practice that recognized 'national debt' or a 'public borrowing',²⁸ the need to secure revenues that were overall not less than expenditure was paramount.

This defence of a low tax level of around 10 per cent or less does not, however, stand up to critical scrutiny very well. The data from Egypt suggest otherwise. Independent calculations by Duncan-Jones and by Bagnall may be summarized as shown in Tables 2.1 and 2.2.

²⁶ Pace Duncan-Jones (1994: chs 1, 3), who is not the only one to have tried.

²⁷ Lo Cascio (2007: 623).

²⁸ See Lo Cascio (2006: 26), though he does think that the minting of new coins 'allowed a sort of policy of deficit spending' (2006: 34), which is simply to say that deficits were addressed by acquiring additional bullion. The reminting of old coins could do this only if the new coins were debased.

First, Bagnall's summary for taxes on land payable, in wheat equivalent, at Karanis and its dependent villages in the north-west part of the Fayum in the second century AD shows average revenues of over four *artabas* per *aroura* from private and public land, thus lumping taxes and rents together and including the wheat equivalent of the money taxes paid on land. The tax rate can be deduced only on the basis of a notion of average yield: few would put this lower than tenfold and I would prefer at least to envisage the possibility that twelvefold is not exaggerated as a general average across the agricultural sector.²⁹ This would suggest a tax rate of between 30 per cent and 40 per cent.

By comparison, Duncan-Jones's calculations are more complex, suggesting a notional composite tax rate of 2.23 *artabas* per *aroura* and supplements at the rate of 24.3 per cent, thus also yielding an overall rate in the region of 40 per cent.³⁰ Duncan-Jones also provides an estimate of capitation taxes, which Bagnall does not attempt, at 20 drachmas per taxable male per annum.³¹ It is difficult to calculate the average rate that this implies, since it depends on several unknown factors: the size of the population (I consider Duncan-Jones's estimate too low); the multiplier to be applied to the taxable adult males for the population total liable to capitation then adjusted to factor in the exempt; the average annual income, of which 20 dr. per annum is a percentage.³² This category of fixed-sum capitation taxes should be taken to include taxes on trades as well as poll tax. In the period before AD 300 there is evidence for a great variety of money taxes on different trades and artisanal crafts and it would be possible to make a stab at quantification of amounts paid in individual communities such as Karanis at particular times, and this could be related to estimates of the numbers of crafts and craftsmen attested in villages and urban centres.³³ We have a good tax list from Arsinoe for AD 72/3 and we know that at Tebtunis the fullers paid 1,092 dr. and the dyers 1,088 dr. annually (*P. Tebt.* II.287).³⁴ It is possible to offer a slightly more coherent description for the period after AD 300 (see below).

Exactitude is clearly out of our grasp, but it seems obvious that this tax rate cannot represent more than a few per cent to be added to the figures for land taxes already cited, leaving us still probably situated somewhere in the range between 30 and 40 per cent. Estimates of total revenue that this represents can be left aside for the moment, since these obviously depend on the size of the

²⁹ See Bowman (2013).

³⁰ Duncan-Jones (1994: ch. 4). These results are, however, affected (biased?) by the calculation that the proportion of public land was 33.6% (too low?) and the supplements weigh much more heavily on private land than on public; in the case of the latter, there are, of course, overheads payable by the landowner (state or imperial house) that also need to be factored in.

³¹ Duncan-Jones (1994: 51); cf. Rathbone (1993), up to 44 dr. per annum.

³² On this, see Scheidel and Friesen (2009).

³³ See Wipszycka (1971); van Minnen (1987); Ruffing (2008).

³⁴ *SPP* IV.70–71, *P. Tebt.* II.287.

tax base in terms of land area and population, for neither of which can we supply robust figures. Consequently, it is of course also difficult to be precise about the average per capita tax burden without some good estimate of the number of those who paid land tax (either directly as owners or indirectly as tenants) and those who paid only the much lower capitation taxes, but it seems likely that any such calculation (for example, 75 per cent of the population taxed at 30 per cent and the remaining 25 per cent urban population taxed at 5 per cent), were it possible, would produce a result significantly lower than 30 or 40 per cent but still around 23 per cent.

Be that as it may, the point of this exercise in the present context has been to expose two roughly consistent sets of estimates based on Egyptian tax data that are very hard, indeed impossible, to reconcile with the assumption of a very low-tax economy (10 per cent or less) proposed by Hopkins, and discussed by Lo Cascio and others (with the assumption, for which I do not fully understand the justification, that the tax rate in an ancient economy *cannot* have been much higher than this).³⁵ For those who accept the validity of these data and the calculations that follow from them, the models constructed by the low-tax proponents look impossible, if not absurd. Whether or not one can defend their value as 'heuristic tools' is a question I leave aside.³⁶

One possible and obvious riposte, of course, is that tax rates in Egypt were much higher than elsewhere and that factoring other, lower-rated, provinces into the picture would bring the average down very significantly. But why should this have been the case? Egypt was evidently a producer of very high total revenues, as was North Africa,³⁷ but that does not imply that a higher rate of tax is necessary or appropriate. Other areas are simply less fertile and/or have smaller taxable populations. Duncan-Jones's survey of the evidence for taxation in the broad context of the Empire suggests some variation across regions and periods, but not to the extent needed to pull the overall average down below 10 per cent. And it is worth noting that the two best-known pieces of literary evidence that he cites, Hyginus and Orosius, are more compatible with the higher than the lower averages suggested above, not less than c.15 per cent:

Agri [autem] uectigales multas habent constitutiones. In quibusdam [prouinciis] fructus partem praestant certam, alii quintas alii septimas, alii pecuniam, et hoc per soli aestimationem. Certa [etiam] pretia agris constituta sunt, ut in Pannonia

³⁵ Hopkins (1980); Duncan-Jones (1990: 189), a tax rate of 20% in a pre-modern society is high. Lo Cascio (2007: 622).

³⁶ Cf. Lo Cascio (2007: 646–7).

³⁷ Duncan-Jones (1990: 193); basic rate of 33% in kind on imperial estates in north Africa in the second and third centuries AD. *Lex portorii provinciae Asiae*, l. 72, 10% tithe on arable, 20% on wine and oil (Cottier et al. 2008).

arui primi, arui secundi, prati, siluae glandiferae, siluae uulgaris, pascuae. His omnibus agris uectigal est ad modum ubertatis per singula iugera constitutum.

(Lands yielding revenue have many different forms. In some provinces they [the landholders] pay a definite proportion of the produce, some one-fifth, others one-seventh; others pay cash and this is based on an evaluation of the land. Definite values have been established for lands; for example, in Pannonia there are first-class lands, second-class lands, meadows, acorn-bearing woods, ordinary woods and pasture land. In all these lands the rent has been established in relation to the degree of fertility in each iugerum.)³⁸

ex omni fructu suo usque ad nunc quintae partis incessabile uectigal exsoluit

(It [sc. the land] has until now yielded from all its produce an unceasing revenue of one-fifth.)³⁹

In any attempt to make an estimate of the totality of state revenues, the income from direct taxation, whatever the correct percentage is, does not give us the whole picture, for it fails to take account of the two categories ignored or underemphasized by Hopkins in particular: military impositions and requisitions for military purposes, which contributed to imperial revenue, and compulsory public service delivered both in money (*munera patrimonialia*) and in service (*munera personalia*), some of which contributed to imperial revenue, some to civic or municipal. These are effectively an extra layer of taxation, the cumulative impact of which was certainly considerable.

The military budget

To begin with the military establishment, if we approach this from the perspective of the cost of the army in the 'imperial budget', the calculations by Duncan-Jones offer a good starting point, even if the figures are admittedly 'partly notional':⁴⁰

c. AD 150: 643 million HS (low)–704 million HS (high); between 72 and 77 per cent of total budget.

c. AD 215: 1,127 million HS (low)–1,188 million HS (high); c.70 per cent of total budget (between 64 and 75 per cent).

There are a number of uncertainties and difficulties involved in breaking down a budget of this scale into its component parts. First, it will be noted that Duncan-Jones concentrates on the costs of soldiers' pay and *praemia*, the latter in principle initially financed by the injection of cash into the *aerarium militare* by Augustus from his *patrimonium* and thereafter by the proceeds of

³⁸ Hyginus 205L = Campbell (2000: 160–1).

³⁹ Orosius 1.8.9.

⁴⁰ Duncan-Jones (1994: 45–6).

the 1 per cent sales tax (*centesima rerum uenaliū*).⁴¹ Apart from some uncertainties about pay rates, especially as regards the differentials between legionaries and auxiliaries,⁴² we cannot imagine that standard deductions from soldiers' pay met the costs of food, clothing, and equipment, especially as rates of pay increasingly fell behind rising costs of commodities in the period between Domitian and Septimius Severus. So, as is generally recognized, soldiers came to rely more and more on donatives,⁴³ and the material needs for food and equipment were met by the increasing and irregular burdens of requisition of goods and services (principally transport and billeting) either free or below open market rates.⁴⁴ Even if we take a rather negative position on what has been seen as the institutionalization of the *annona militaris* in the third century, we must still regard a growing and variable practice of levying goods and services as a component of state revenue directed to meet the needs of the military budget, which will also have varied according to place and circumstances, even in 'peacetime'. These considerations might suggest that Duncan-Jones's calculations underrepresent the real cost of maintaining the military establishment (though it does not necessarily follow, of course, that they underrepresent the percentage).

Indirect taxes

In view of the fact that the cost of discharge bonuses (*praemia*) was met by revenues derived from a 1 per cent sales tax (see above), it seems necessary to take into account the impact of indirect taxation on imperial revenues. This tends to be absent from calculations of the income side of the 'imperial budget', and it is not hard to see that there is little or no basis for assessing the amounts of revenues returned by taxes on sales, inheritances, manumissions, and so on. A major category, if not the major category, of *ad valorem* taxes are the customs dues (though some of these are also fixed-rate taxes), and these offer us some sense of scale and can be more directly related to levels and patterns of trading. Here too we have a good deal of evidence from Egypt, but there is rather more known about customs duties empire-wide than other

⁴¹ *Res Gestae* 17; Tacitus, *Ann.* 1.78: 'centesimam rerum uenaliū post bella ciuilia institutam deprecante populo edixit Tiberius militare aerarium eo subsidio niti' ('In the face of public opposition to the 1 per cent sales tax introduced after the civil wars, Tiberius issued a statement that the military treasury relied on that subvention'). Reduced to 0.5% after the annexation of Cappadocia in AD 17, Tacitus, *Ann.* 2.42.4.

⁴² Speidel (1992); Alston (1994).

⁴³ Duncan-Jones (1994: 257).

⁴⁴ E.g. *puros sunagorastikos* (= *frumentum emptum*) from the first century onwards: *P. Oxy.* XLI.2958 (and introd.), XLVII.3335, LX.4063; some noted as destined for military consumption. Summary by Lo Cascio (2007: 638). Individual soldiers, and perhaps units as a whole, clearly also purchased goods on the open market.

taxes for the earlier imperial period.⁴⁵ It is, of course, clear that these were imposed in a variety of ways and at a variety of levels, particularly in the east before the Roman annexation. The most easily accessible examples from Egypt come from the Zenon archive, which also provides well-known detail about the relationship between external and internal currency.⁴⁶ Broadly speaking, in the imperial period both in east and west we find the incidence of flat-rate tolls, as at Coptos, for use of transport routes, and at Palmyra, and both *ad valorem* and fixed-rate customs duties payable on goods in transit between towns and villages and regions.⁴⁷ External import and export duties were generally charged at a high rate of 25 per cent, whereas internal duties, the rates of which varied, were much lower: figures of 5, 3, 2.5, and 2 per cent indicate the range. On the other hand, since these dues were both regional and local, it does seem that goods moved over distance might have had to pay such duties more than once in the course of their journey. Pliny the Elder famously quantified the high level of overhead transaction costs that such duties imposed, though the passage has often been misinterpreted. He cites the high figure of 688 *denarii* per camel as overhead costs created by customs duties, and these are often taken to refer to Roman taxes;⁴⁸ but he actually cites this figure for the taxes incurred on the journey through the client kingdom to the destination of Gaza, and says that there are Roman customs duties, not quantified, to be paid in addition to that. They were clearly very widespread, as the Egyptian evidence shows (see below), and there were thirty-seven customs stations at the gates of Rome.⁴⁹

Although Frank did attempt to produce quantified estimates for the Republic and the Empire,⁵⁰ it now hardly seems possible to suggest how an empire-wide total of such revenues might be calculated. Frank estimated that provincial dues in 63 BC totalled about 40 million *denarii* (160 million HS), of which about 10 million (40 million HS) would come from 'customs dues at harbours, and other less important sources like the monopolies on public forests, and the fishing, river and salt taxes'. The income of the *aerarium* under Augustus was approximately 450 million HS (that is, 112.5 million *denarii*), presumably excluding the revenues of the *patrimonium* (*fiscus*), and under Vespasian there was an unknown quantity of port dues, of which, according to Frank, about

⁴⁵ A good starting point is the recent summary sketch by Duncan-Jones (2006). In more detail, many publications of France, including France (1994; 2003).

⁴⁶ *P. Cair. Zen.* 59012 (= Austin 237), showing very high rates of 50%, 33.33%, 25%, and 20%; *P. Cair. Zen.* 59021 (= Austin 238), for the relationship between internal and external currency. Cf. France (1994: 130–1).

⁴⁷ Coptos Tariff: *OGIS* II.674 = SB V.8904 = Bernand (1984: no. 67). See Burkhalter (2002). Palmyra, *CIS* II.iii.3913, cf. Matthews (1984). Also Zará, *CIL* VIII.4508; de Laet (1949: 264).

⁴⁸ For the carrying capacity of a camel, see Adams (2007: 80).

⁴⁹ Palmer (1980); 46+ customs stations for external trade are listed in the *lex portorii provinciae Asiae*, ll. 23–6 (Cottier et al. 2008).

⁵⁰ Frank (1933: 324; 1940: 6–7, 49–50).

half went to the *aerarium* and half to the *fiscus* (a division that would by that date not be significant in terms of estimating public revenue from taxation). The fragility of these guess-estimates is obvious, but we are not in a position to do any better now. Strong evidence for the imperial government's attention to the role and the organization of such taxes in the larger picture is provided by the Ephesian *lex portorii provinciae Asiae*, which not only gives us a virtual potted history of the Asian customs revenues but shows that the details of the Asian taxes were checked by the *curatores uectigalium publicorum* in AD 62 under the instruction of a *senatus consultum*.⁵¹ More useful, it seems to me, is the documentation (Egyptian, once again), which suggests the scale of such taxable trade and transport, internal and external. There are a number of customs-house registers from the Arsinoite nome (Fayum), which derive mainly from the village of Soknopaiou Nesos to the north of the lake and on the route to Alexandria. It is all the more striking, therefore, that one of the registers from another village, Bacchias, dating to AD 114, shows, as does much other evidence, a high accumulation of tax income from internal transportation of routine goods at one station in one month, tax which would be worth about 2 talents (12,000 drachmas) annually if replicated across the whole year.⁵² This mainly represents payments of a well-attested tax of 3 per cent, and if this were applied to the whole record for the month it would represent a total of 400,000 drachmas (or HS) = 66.66 talents for the value of the goods transported on 107 separate journeys through the station.⁵³

As for the duties on external trade, the now often-cited Muziris Papyrus indicates an astoundingly high value for the Indian trade in the mid-second century AD, far beyond what Pliny the Elder implies. This document contains on its recto part of a contract relating to maritime loan for a voyage from Alexandria to Muziris on the Malabar coast and on the verso part of a detailed account of the value of a cargo of ivory, nard, and other commodities (now lost) imported from India perhaps on the return voyage of the same vessel, named the *Hermapollon*.⁵⁴ The calculations by Dominic Rathbone show a payment of the 25 per cent export tax for this single cargo totalling about 2,308,950 drachmas (the equivalent in *sestertii*). He further notes the well-known evidence of Strabo that, in the 20s BC, 120 ships were sailing from Myos Hormos (not, of course, the only port on the Egyptian Red Sea coast) to India, a sixfold increase from the Ptolemaic level of traffic.⁵⁵ Of these figures, only the 25 per cent tax payment is sound, and we cannot assume that this was a

⁵¹ Cottier et al. (2008: II.1–3).

⁵² *P. Wisc.* II.80, cf. Sijpesteijn (1987: 85–90); Cottier (2005: 95–7).

⁵³ Most, but not all, of the items on which tax was paid were comestibles and subject to seasonal variation, so it would be unsafe to assume that receipts for all months were at the same level.

⁵⁴ De Romanis (1998); Rathbone (2001); cf. Nappo, Chapter 17, this volume.

⁵⁵ Rathbone (2001: 48–9); Strabo 2.5.12; 17.1.3; see also Wilson (2015).

cargo of 'average' value, but the sum itself suggests that estimates of revenues of the magnitude quoted above are probably significantly too low.

Civic taxes

All this is from the perspective of the imperial government to which these revenues from customs accrued. But it should be added that there is further evidence, the most detailed from Asia Minor in particular, that highlights another aspect of this form of taxation. There were clearly not only imperial customs dues, internal and external, but also customs dues which the cities and municipalities could levy by specific permission or under imperial control on goods moving into and through their territories.⁵⁶ It is not always easy to be certain that customs dues really are local revenue, for they can potentially be confused with cases where we see the municipalities or *poleis* collecting lump sums as their allocation of imperial customs duties (internal), but there clearly are some incontrovertible cases: the Palmyrene Tariff, and others are well known at Kaunos, Mylasa, and Sabora; France was able to tabulate examples at twenty-two cities.⁵⁷ The sums might be substantial. At Kaunos in the early second century an inscription commemorates a benefaction of (probably) 66,000 *denarii* (264,000 HS) to replace a 5 per cent local customs tax.⁵⁸ Such local (that is, municipal) customs dues might be additional to duties payable to the central government, and this is more than likely to be the case except where the city was exempt from imperial tax (for example, *coloniae* and those with the *ius Italicum*), in which cases all such tax payments would be local revenues and Roman citizens would not be exempt from these.

Other major sources of civic revenue included payments for magisterial or curial office (*summae honorariae*) and *munera* or liturgies both in cash (*patri-monialia*) and in kind (*personalia*).⁵⁹ As in many other examples, it is possible to produce figures from the evidence that suggest the scale of such revenues in specific places and periods, but entirely impossible to aggregate these to reach any sort of global picture.⁶⁰ Duncan-Jones, for example, made an estimate of the civic budget at Thubursicu Numidarum (Khamissa, Algeria), relating these sources of income to building costs: a temple costs four years' income, a forum about eleven years' and a theatre thirty-three years' or more.⁶¹ This, of course,

⁵⁶ See Dig. 39.4.10, CJ 4.62.1–3. There are good surveys of the range of municipal taxation in *Il capitolo delle entrate* (1999). See also Schwarz (2001), and the contributions to Leveau (1985), especially that of Corbier (1985).

⁵⁷ France (1999); Mylasa is interesting because the testimony dates to the fifth century AD but the tax may originate as far back as the Triumviral period.

⁵⁸ Marek (2006: no. 35).

⁵⁹ On civic *munera*, see Grelle (1999).

⁶⁰ See the pioneering work of Duncan-Jones (1982: 82–7, 147–55), on Africa and Italy.

⁶¹ Duncan-Jones (1990: 177–8).

ignores the major role, very significant at least up to about the middle of the third century AD, of *voluntary* contributions through euergetism, some of which were guaranteed through the mechanism of *pollicitatio*.⁶²

Two further points. First, it is important to emphasize that from the point of view of the taxpayer the effect of such impositions was naturally to add to the burden of imperial taxation, but the impact of taxes where the revenue remained in the local community will have been different from that of imperial taxes, which were, in whole or in greater part, removed from the local economy for redistribution elsewhere and thus provided stimulus (or the reverse) in a much broader context—that is, essentially, the core of the ‘taxes-and-trade’ model. Second, these forms of local taxation in cash and kind defy the standard cliché about the character of Roman taxation as non-progressive, since *summae honorariae* and *munera*, although they may individually be fixed charges, are effectively based on property qualification and ability to pay and therefore fall more heavily on the rich than the poor. Similarly, rents on civic land and, for that matter, rents on state-owned land, which went to the central government, based on yield and productivity, were also to some extent progressive.

A LOW-TAX REGIME?

All this rather tends towards seriously modifying the description of the Roman economy as a low-tax economy, in much the same way as current low rates of income tax in Britain do not, in the eyes of some economists, not to mention some taxpayers, tell the whole story. Nor do all economic historians accept that the interplay between tax and trade is sufficient to account for increases in Roman seaborne commerce (for example, Lo Cascio). Taxation for military purposes complicates the issue still further, especially if it is close to the mark that the army accounts for a massive 75 per cent of public expenditure. In sum, the main questions for the period before AD 300 are whether it really was a low-tax economy (if so, how low?) and whether taxation stimulated trade and exactly how (differently in the cases of internal and external trade?). When taxes are defined as impositions that the taxpayer could not avoid or legitimately evade (unlike euergetistic benefactions), the answer appears to me to be that it could not have been as low as 10 per cent overall, if we include the items that are commonly omitted by Hopkins and others. Although it is no more than impressionistic, and therefore worth no more than that, the evidence assembled here invites us to wonder whether a figure around 20 per cent

⁶² On this, and with a slightly different set of calculations than those of Duncan-Jones, see Briand-Ponsart (1999). On the later period, see Millar (1983/2004), and below.

overall seems more plausible.⁶³ This is probably too high (even with civic taxes included) and certainly much higher than most ancient economic historians could tolerate. But it is worth adding that a very low figure, of significantly under 10 per cent in the High Empire, presents us with a conundrum: namely, to explain how the state could have functioned and survived after AD 300 with what appear to be much lower rates of central revenue.

Various fiscal stimuli, the government use of coin, and taxation all affected trade positively in different ways. It is important to bear in mind the fact that (like rents on public or imperial land) much of the revenue raised remained and circulated in the areas where it was raised (that is a phenomenon of broader significance too). If nothing else, these modes of raising revenue significantly reduce the transaction costs that the government has to bear in raising its taxes and getting them to the places where they need to be spent, by placing the financial burden on the local communities or the individuals—simply another form of taxation falling more heavily on the wealthier. One question that may be significant here for our present purposes is whether this combination of direct, indirect, and ‘unseen’ taxation is more or less stimulating to trade and commerce than other modes or combinations of modes. In attempting to answer this question we would, I think, have to take account of the ways in which the major element of transaction costs (that is, transportation) was managed, largely with transport of state revenue in kind contracted out to private entrepreneurs.⁶⁴ It is perhaps not an oversimplification to think of this as a micro-model of what Hopkins proposed: transporters offset the low-profit (or no-profit) activities of contracted state transport by maximizing their opportunities for high-profit private trade along the same routes and using the same infrastructural facilities (warehouses, ports, and so on).

However diverse the scenarios may have been in the High Empire, it is generally believed that the effects of the administrative reforms of the Diocletianic and Constantinian periods were to establish a system of assessment and tax collection, based on the units of *iuga* and *capita*, that was more uniform across the Empire and likely to have assimilated Egypt, where much of our evidence once again originates, to a greater extent than had been the case earlier (even though Egypt retained the terminology of its traditional units of assessment).⁶⁵ For the first half of the fourth century, with which we are here concerned, on the one hand it is easier to discern the outlines of a more rational and uniform organizational structure, but on the other there is a formidable complexity in the detail that is not always easy to accommodate

⁶³ Cf. Bang (2002), who opts for central imperial revenue in the range of 10–15% of GDP, but this excludes local civic revenues.

⁶⁴ As, e.g. in the archive of Nikanor. On this subject, see Adams (2007: ch. 10).

⁶⁵ See the Edict of Aristius Optatus, *P. Cair. Isid.* 1 (297).

neatly to the proposed structure.⁶⁶ By the later third century, there is clear evidence for an attempt at systematization on the part of the government, even allowing for the fact that the impression of anarchy in the decades after AD 250 is at least partly attributable to poor or non-existent evidence. It cannot be used to posit a collapse of the monetary economy as such, but it is clear that the balance between the regular annual tax quotas (whatever they may have been) and the annony and other demands imposed by the military establishment had become seriously skewed, to say the least. The reintroduction and reorganization of the census formed the basis for the new method of assessment and tax cycles, many details of which are still imperfectly understood. The stability of the currency was re-established with the eventual centrality of what came to be called the gold *solidus*. Notable also in this connection is the evidence for tax payments in gold bullion and the fact that the money taxes payable on land were assessed in gold—clearly a lesson learned from the third century.

There was also clearly major reorganization of the taxes levied specifically to meet military needs, from the point of view of both assessment and delivery. We must again recognize the Egyptian bias in our detailed evidence, but the papyri from Panopolis yield a good picture of the rationalization of the system of supply and payment in a limited local context at an early stage (AD 300), which surely eventually became more pervasive (even if it frequently failed to work as intended).⁶⁷ That conclusion can reasonably be drawn from papyri dating to AD 361 that document in detail the delivery of cash and *annona* goods to Alexandria and to Pelusium.⁶⁸ Detailed evidence for the method of assessment is exemplified by a papyrus codex from Hermopolis of AD 324/5 or 325/6, which shows a village-by-village assessment, based on land, for military clothing, with types of garments paid in their cash value.⁶⁹ The financial burden entailed by military recruitment was also incorporated into the tax system (*aurum tironicum*) from the time of Diocletian.⁷⁰ These are all clear indications of a move towards incorporating the previous practices of levy and requisition into an established and regular taxation schedule. Whether these reforms increased or decreased the burden overall is difficult to judge, but they certainly did not remove it.

⁶⁶ Jones (1964: 448–69) remains fundamental. For a good summary, see Lo Cascio (2005: 174–7). The best recent treatments of detail are those of Carrié (1993; 1994) and Duncan-Jones (1990: ch. 13; 1994: 57–63). See also Delmaire (1989).

⁶⁷ Bowman (1978).

⁶⁸ *P. Oxy.* LXVII.4606–13, Alexandria; 4598–605 (AD 361), Pelusium (perhaps in preparation for the campaign of Constantius II against Julian). Cf. also the fourth-century *mansio* accounts in *P. Oxy.* LX.4087–8, recording rations for both military and civilian officials.

⁶⁹ *P. Col.* IX.

⁷⁰ Jones (1964: 615).

As for the direct and indirect taxes that can broadly be characterized as ‘civil’, we should emphasize several innovations (not all simultaneous) that are of central importance.

- Direct public ownership of land in Egypt (and surely not only there) disappeared almost completely, even land that retained the designation of *ge demosia* being in private ownership. The corollary of this is a reduction in tax rates, from higher rents to lower direct tax payments (see below).⁷¹
- The introduction under Constantine of the *chrysarguron* or *collatio lustralis* is effectively an amalgamation of various capitation charges, including poll taxes and taxes on trades, and suggests a conscious rationalization.⁷² These taxes were now assessed on the capital assets of the *negotiatores*, not on their volume of trade. Papyrological evidence from the fifth century shows that this was collected through the guilds, and the fourth-century evidence from Oxyrhynchus for regular reporting mechanisms by the local trade guilds of the value of their stocks of market goods may be a feature of this new system.⁷³
- Customs dues continued to be levied by the central government but at a rate reduced from 25 per cent to 12.5 per cent in the case of external trade. It is noteworthy that these revenues are now more rationally apportioned between the municipalities and the *sacrae largitiones*, 60 per cent to 40 per cent in favour of the latter.⁷⁴
- As far as local revenues are concerned, the decline or lower levels of euergetism may be compensated by a greater institutionalization of municipal income (for example, *epikephalaion poleos*?) and city *vectigalia* are now under imperial control.⁷⁵

What figures can we put on these changes? A summary of the calculations by Bagnall and Duncan-Jones (Table 2.3) will reveal tax rates and revenues that are lower than those of the earlier period cited above.

Table 2.3. Land and taxes at Karanis, mid-second to early fourth centuries AD

Location	Land (<i>aroura</i>)	Tax (<i>artaba</i> /wheat)	Tax rate (<i>artaba/aroura</i>)
Karanis	1,198	2,092	1.74
Horiodeiktia	3,020	4,447	1.47
Total	4,218	6,539	1.55

Source: Bagnall (1985; 2003).

⁷¹ On this, see Bowman (1985); Rowlandson (1996). There is little evidence for private estates elsewhere, but cf. Thonemann (2007).

⁷² Jones (1964); Bagnall (1993: 153–4).

⁷³ *P. Rainer Cent.* 122 (426); *P. Oxy.* LIV.

⁷⁴ Delmaire (1989: 276 ff.); Merola (2001: 121–39).

⁷⁵ Millar (1983/2004); Lepelley (1999); Bowman (2009).

Following Bagnall's summary for the fourth century, admittedly made on the basis of imperfect evidence:⁷⁶

Taxes on land assessed in kind: 1.6 *artaba/aroura*.

Taxes on land assessed in cash: 0.5 *artaba/aroura*.

Total: 2.1 *artaba/aroura*.

To which he adds a calculation for capitation taxes:

Chrysarguron (collatio lustralis) at Oxyrhynchus 0.57 *solidi* per annum (earlier collected in cash as *epikephalaion* = 2 *artabas* p.a. in wheat equivalent).⁷⁷

With this we may compare Duncan-Jones's figures for the aggregate rate on public and private land in the late Oxyrhynchite and Antaeopolite Nomes of 1.59 and 1.29 *artaba/aroura*.⁷⁸ Once again, the figures tend to converge to suggest a significant drop in tax rates compared to the much higher earlier rentals on public land. Bagnall's more comprehensive calculation takes account of taxes in land paid both in kind and in money, and also calculates the rate of capitation taxes in money (*chrysarguron/collatio lustralis*).

Several general conclusions might be drawn from this material.

- First, the clear shift in weight from the earlier considerably higher rates of rental on public land to lower rates on privately owned land, an effect of the large-scale privatization of land, might not in the end deliver significantly less revenue to the central authority when we discount the overhead costs involved in direct management of land by the state (seed, supervision, rent collection, involvement of salaried government officials, and so on).
- Second, the level of assessment of land taxes under the new system of *iugatio* against the quotas actually delivered might at least partially counteract a reduction of the rate in several categories.⁷⁹ But note that Orosius (cited above) still alleges revenues of 20 per cent from land in the later period.⁸⁰
- The calculation and collection of tax liabilities on land in the form of gold bullion in the early fourth century will have had a beneficial effect for imperial revenues.⁸¹

⁷⁶ Bagnall (1985 = 2003; 1993: 154–7).

⁷⁷ The exact nature of the *epikephalaion* is still less than clear, see Bowman (2009).

⁷⁸ Duncan-Jones (1994: 57). ⁷⁹ Duncan-Jones (1990: ch. 13).

⁸⁰ The sixth-century evidence of Justinian's Edict 13.8 for revenues of 8 million measures of grain going from Egypt to Constantinople has been debated, since there is uncertainty about the identity of the unit of measure, see Rathbone (1989); Sirks (2003); Mayerson (2007). Transportation taxes on this, collected at Alexandria, amounted to 80,000 *solidi*. If *artabas*, then a high total revenue, if *modii Italici*, much lower, since the *modius* is about one-third of an *artaba*.

⁸¹ Carrié (1993: 127).

- The collection of capitation taxes in cash must be seen in relation to the re-establishment of the stability of the currency (and the renewed centrality of the gold coinage) even allowing for the effect of nominal inflation in the silver and bronze denominations (that is, remonetization or retariffing).
- Finally, there was a move towards a clearer and more rational system of budgeting for state expenditure, both civil and military.

All this suggests the distinct possibility that by restabilizing the currency as central to government fiscal operations and by reducing the transaction costs that fell directly upon the central government, rates of taxation could effectively be lowered. It remains a possibility, though we cannot measure it, that the efficiencies and lower tax rates introduced in the early fourth century substantially compensated for the loss of revenues compared to the earlier, higher-rate, tax regime, when the revenues had perhaps been uncollectable in full.

CONCLUSION

As Kehoe remarked in an earlier volume, the behaviour of the economy has to be explained at least partly by analysis of the fiscal and legal measures that the imperial government created or imposed.⁸² Here I have concentrated on levels and modes of taxation, not least because the ‘taxes-and-trade’ model has been prominent in the debate about the ancient economy since the 1980s. A major issue has been the centrality in that model of the notion that the Roman economy was a ‘low-tax’ economy. This is, of course, not disproved by the fact that the victims of ancient taxation, like their modern counterparts, perennially complained about the crushing burdens of taxation. But, although levels of direct taxation levied on privately owned land were certainly low in the High Empire when agricultural economy might well have accounted for around 80 per cent of overall economic activity compared to around 20 per cent from trade and industry, as A. H. M. Jones thought was true for the later empire,⁸³ I believe that this severely underestimates the revenue raised from direct taxation in the agricultural sector, which must surely have far outweighed tax revenue from other forms of economic activity. Although it is only in Egypt that we can see figures and orders of magnitude, it is clear that a great deal of publicly owned land, mainly in the categories of state land (*demosia/basilike*) and imperially owned land, which might have constituted as much as a third of the whole, was leased at much higher rates of rental. Why should it have been different elsewhere, except perhaps in the proportions of public and private land (clearly significant quantities in Africa,

⁸² Kehoe (2013).

⁸³ Jones (1964: 465).

for example)? A debate may be had over what precisely are the differences, if any, in terms of fiscal and economic instruments, between raising revenue as direct tax and raising revenue as rental on publicly leased land. In the latter case, the rents imposed, which could be and were varied in lease agreements,⁸⁴ include overhead costs of management met by the state, and this naturally reduced the net 'take' that was available to the central government for reuse and redistribution, some locally in the regions where it was raised, some more broadly across the Empire.

I have also suggested that the tax burden has to include several significant categories of revenue that are commonly ignored by the proponents of the 'low-tax economy'. To these, from the point of view of the taxpayer must be added the burdens of local civic taxation both in cash and in kind; these relieved the central government of the need to support local facilities and services and are of course locally directed and deployed, but the balance between what goes to central government and what goes to local community will affect the nature of the economic stimulus or disincentive created by the taxation. In other words, they cannot be ignored in any scenario that proposes that taxation stimulates trade by incentivizing taxpayers to earn the money to pay the taxes, even if we thought that patterns of local and interregional and external trade might have been affected in different ways. In the final analysis, I suggest that the overall burden on the taxpayer in the High Empire was likely to average ± 20 per cent and was very unlikely to be less than 15 per cent. I remain unconvinced that there is any economically rational foundation for the view that ancient states *cannot* have taxed at more than 10 per cent. If sharecropping in the private sector with a rate of 20 per cent to the landlord is regarded as feasible, a public tax rate of 20 per cent is merely the same order of magnitude on a state scale. This view is consistent with the documentation from Egypt, and I can see no reason why tax rates elsewhere should have been significantly lower, even if the return were less. This naturally leads to the question of whether, if I am right, the models based on a tax economy of 10 per cent or less are of any use at all; perhaps not only methodologically but for further debate?

The characteristics of the tax regime introduced over a period of time in the Diocletianic period and early fourth century that I have highlighted above suggest a significant shift towards privatization of landholding and reduction of the rates of tax on land. There was also a halving of the customs duties on external trade and a rationalization of the imposition of capitation taxes. As far as one can tell, overall rates in the fifth and sixth centuries were still perhaps in the region of ± 20 per cent. The privatization of land removed the earlier high rentals on public land, but that was counterbalanced by the alleviation of the

⁸⁴ See Rowlandson (1996; 2005).

costs to the state of administering public land. This supposition, it should be noted, is consistent with the revisionist views on sixth-century Egyptian estates proposed by Jean Gascou: that administrative partnership with the state and fiscal participation in the public economy are central characteristics of the role of the wealthy landholding elites.⁸⁵ The case for reduction of trade and therefore of revenues from trade in the later period can be persuasively made, although there are clearly regional variations. Whether aggregate and per capita GDP was also reduced is a question that needs further attention.

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⁸⁵ Gascou (1985); cf. Banaji (2002: 93–100).

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Law, Commerce, and Finance in the Roman Empire

Boudewijn Sirks

1. INTRODUCTION

1.1. Commercial law in antiquity: An anachronistic concept

Commercial law is a concept that has developed only since the Middle Ages. Alongside Roman law, taught at universities and applied in practice, merchants invented and developed legal constructions that they needed for their trade: the cheque, the commenda society, the *firma*. These concepts they could not find in the *Corpus iuris*. They also set up their own courts and had their own commercial rules on maritime trade and shipping, such as the Rules of the Isle d'Oleron and the Antwerp customs. By the end of the eighteenth century, when the great codifications were made, commerce had its own legal niche, and the merchant his own legal position. Thus, for example, silence could mean consent in commercial contracts, and the accounting book was convincing evidence. It led to special enactments and later on separate commercial codes, such as the *Code de commerce* of 1807 in France. In Germany, after the founding of the Empire in 1870, a Commercial Code was separately enacted because it was necessary for trade to have a uniform law in the entire Empire. The law for private citizens would have to wait.

As regards the Roman Empire, all this was unknown in Roman law (the best-documented ancient law we have) and to the Romans; only in Athens do we find courts for commerce. Consequently, to look for Roman commercial law is, like looking for human rights in antiquity, an anachronism.¹ But by realizing this we can look for what we really want. What definition should we use? If we call commercial any exchange of goods and services produced, we

¹ See, for a discussion of this, with a similar view, Bianchini (2007).

include the local market. In antiquity, where agriculture was the overall dominating form of existence, this would include, above all, the whole of the production exchanged or sold by the producers themselves for their own village. If we use the term commercial in the sense the Romans might have used it when Rome itself was a mere small town with some surrounding territory, it would mean the exchange of goods between cities. That would already restrict it to goods that were valuable enough to transport to other cities; in other words, surplus production above the needs of household production and sale or exchange at home. Such goods would require special transport, and this would raise the question of what kinds of contracts were concluded. If production and sale increased, this might require financing labour other than that of the producer himself and his family. Markets become feasible too. Perhaps some special rules had already existed before, but one can imagine that only with exchange on such a scale, and production for such a scale, do special regulations and legal devices have sense and a use, and indeed we see in Roman law, the best legal documentation we have from the ancient world, special law and constructions for economic activities on that scale,² while 'normal' law on sale does not distinguish between the occasional sale and sale as an economic activity. On the other hand, agriculture was the general form of existence, and the sale of excess products on the local market was, on the one hand, a commercial activity in our definition, but, from the point of view of the landowners, more likely to be an aspect of husbandry.

1.2. The approach of this contribution

It will be evident that a clear-cut handbook on Roman commercial law in the manner of modern books on commercial law is not possible. A different approach is needed. This has been done recently by Cerami, Di Porto, and Petrucci, in *Diritto commerciale romano* (2004), which selected those features of Roman society and economy that were most important in commerce and described and analysed the relevant legal dispositions around them. These themes are *negotiationes* and *negotiatores*, *servus* and *libertus*, banking, organization of shipping enterprises, and agricultural enterprises. They primarily deal with the 'periodo imprenditoriale', 242 BC–AD 235.³ A similar, shorter

² An example of a financial construction in later times that took account of the variation in risk is given in Sirks (2002a).

³ Cerami, Di Porto, and Petrucci (2004: 13–33) with a historic overview; p. 5 also distinguishes between the *ius mercatorum* of the Middle Ages and the law of antiquity. They cover: economic activity dictated by the needs of the market in general, which comprises: (a) commerce in the economic sense (exchange and circulation of goods), and (b) commerce in the sense of the other economic activities of intermediation (activity directed at the production of goods and services, of transportation, of banking and insurance). These can be reduced to two basic models.

work is *Banca, navegación y otras empresas en el derecho romano* of 2007 by Soriano Cienfuegos.⁴ Another recent work, *Antike Kapitalvereinigungen* by Fleckner of 2010, takes the early nineteenth-century debate on limited companies as a starting point and analyses those four elements of the debate that were based on ancient sources. This means that the author concentrated, as the title suggests, on *peculium*, *societates*, *societates publicanorum*, and corporations. This work, too, is very good but of course limited in range.⁵ Several aspects that are found in the first work, such as shipping or agriculture, are understandably not dealt with at all. There is not much point in redoing a good study, and the constraints of this collection require some choice. This chapter will focus mainly on the first four centuries AD.

First, since these works deal only with Roman law, it is useful to consider the question of which law was applicable anyway. After all, in the Republic much commerce must have taken place between Romans and peregrines (non-Romans), and this will have remained a significant aspect until AD 212; and in the fourth and fifth centuries commerce with non-Romans (the barbarians) may have formed part of the total commerce again. We do not know much about the non-Roman laws. Yet, notwithstanding this, anyone occupying himself with the legal aspects of commercial relations must in any case consider which law might have been applicable, as papyrologists, who often have to deal with ambiguous situations, know all too well. After having dealt with this question, we shall deal with the position of non-Romans (peregrines) within Roman law and jurisdiction, a question relevant for the Republic and Early Principate but also for the Later Empire.

Second, it is useful to approach the commercial side of the law from Roman private law itself, insofar as it addressed commercial activities, using the systematization the Romans themselves developed. We can restrict ourselves here to a survey, with reference to Cerami, Di Porto, and Petrucci (2004) and

One is that there is an autonomous body of rules for these; the other, that there is a complex of norms for these activities that are part of the general system of private law but acquire their own meaning in the case that an economic activity acquires a special intensity. The work abounds in references to earlier (particularly Italian) literature and works such as Serrao (1984) and Serrao (1989) or García Garrido (2001). For this I refer the reader to their work. Three conferences were dedicated to finance and commerce: XII Congrès ARC (*Atti dell'Accademia Romanistica Costantiniana*, 1998), *Credito e moneta* (Lo Cascio 2003), and *Affari, finanza e diritto nei primi due secoli dell'impero* (Milazzo 2012).

⁴ Soriano Cienfuegos (2007).

⁵ Fleckner (2010). He distinguishes: structure (separation of management and ownership), protection of the individual fortunes, protection of the common assets, transferability of participation. Further, he distinguishes three forms of organization of capital concentration in Roman antiquity: *societas*, *societas publicanorum*, and *peculium*. Against these criteria he lists these three forms and a fourth, corporations. I shall cite other literature, but do not aspire to give a full survey of all literature. Fleckner (2010) and Cerami, Di Porto, and Petrucci (2004) provide the reader with sufficient access to older specific literature, while the general textbooks cited in n. 54 supply further literature. See further for Fleckner, Sirks (2012).

Fleckner (2010), adding to them whenever useful, and so cover commerce from the angles not particularly addressed by Cerami, Di Porto, and Petrucci. What existed in Roman (and other) law that merchants needed or used? Were there special rules for them? Were there adaptations in private law that facilitated commerce? And were there facilities that in an indirect way supported commerce? Financing is also implicit as an essential element of commerce, and, indeed, there are features within the law that are clearly directed at a specific application to commerce or finance. We restrict ourselves further to the law between individuals that makes commercial activities possible, rules it, or supports it—thus the proper private law. Regulations that do not directly govern the relations *between* merchants will be left aside, but we shall treat briefly public legal constructions that allowed for private trade. Likewise, the edicts of the aediles and their jurisdiction formed the shape and contents of private agreements and for that reason deserve treatment. As for public law, which potentially influenced commerce because of customs duties and export regulations, we shall mention this briefly.

Third, it is useful to consider the financial aspects in greater detail. Cerami, Di Porto, and Petrucci have set out these aspects extensively, but more detail is useful here and there; most of Andreau's works on banking leave legal aspects aside; Bürge gives these more attention.⁶

2. WHICH LAW APPLIED?

Many cities in antiquity constituted individual and independent states and, consequently, states with their own law that regulated the relations between their own citizens. Everybody was a citizen of his home town, and each town had its own public and private law, unless it was a colony of another town and had copied the law of that town. So, unless business was conducted between citizens of the same town, the question of applicable law was already acute. Even with the Hellenistic successor kingdoms it is not clear whether there existed private law that was applicable to all citizens of these states. For example, Egypt had three 'Greek cities' with, at least at Alexandria, their own 'civic' law, while in the rest of the country there were separate law courts available to the Greeks (*chrematistai*) and to the Egyptians (*laokritai*). So, when pondering the question of which rules governed the relations between businesses of which we find archaeological, epigraphical, or documentary traces, we have to consider these aspects. Thus, if we were to find an inscription

⁶ Andreau (1974; 1987), although Andreau (2006) does examine legal cases; Bürge (1987); Petrucci (1991; 2002); Verboven (2000); also *Atti dell'Accademia Romanistica Costantiniana* (1998); Lo Cascio (2003); and Milazzo (2012). See also for more recent literature Ligos (2015).

of AD 100 referring to a wine enterprise in Cilicia, it might refer to Roman law, or equally to local law. Papyrologists are used to this: unless it is evident, they have to consider Egyptian, Greek, or Roman law in papyri. Unfortunately there is almost nothing known about antique law other than Roman law. We have some knowledge of the law of Athens and Gortyn and some other Greek towns,⁷ we have some treaties that also deal with commercial relations (settling legal disputes between citizens),⁸ but that is all; and it is not much.⁹ With Roman law it is different: that law is well documented. Moreover, a considerable part of it, and particularly important for trade and financing, the *ius gentium*, was applicable and applied through the Roman courts to both Romans and non-Romans, as we shall see. It is not too far-fetched to assume that here in any case general principles were embodied that were usually followed throughout the Mediterranean in other jurisdictions and legal systems as well.

Thus, as soon as citizens of different states came into contact with each other, as in commerce, and legal problems arose, such as 'Is a sale possible?' or 'Can a seller claim the price due?', the question of the applicable law was acute. The litmus test is: is litigation possible and which law applies? Is there an applicable private law anyway? To answer that question we should first know which law applied. There were several possibilities: the private law of the towns or peoples to which the contracting parties belonged, the private law of their residence, or the private law of the place where they contracted. There could also be state law (as in Egypt) or provincial law (as in the Roman Empire).¹⁰ Perhaps a treaty existed that ruled such matters next to questions of trade, such as the treaty between Rome and Carthage of 508/507 BC, or between Athens and other cities.¹¹ In the Republic, civil procedure would be

⁷ For Athens, our sources are better than for the other towns: see Todd (1993) and, further, Cohen (2005), dealing mainly with Athenian law. I leave out Jewish law and the laws of Mesopotamia.

⁸ Such as the treaty between the towns of Stymphalos and Demetrias, for which see Thür (1995).

⁹ And regarding Athenian law: the sources date mostly from the fourth century BC. This does not mean that the law was different or very different in the second century AD, but there is nothing to confirm this assumption.

¹⁰ For the various law systems in Egypt (not based, so Wolff, in Ptolemaic times on the personality principle) and the great legislation regarding these and the judiciary, see Wolff (2002: 23–98); Rupprecht (1994: 94–5); for provincial law, the example of the edict concerning manumission in Macedonia, which was valid before and after the *Constitutio Antoniniana* of AD 212, see Youni (2010).

¹¹ In Athens foreigners could have access to certain Athenian courts (*dikai apo sumbolôn*) on the basis of a treaty or to *dikai emporikai*, open to all foreigners but restricted to maritime cases (Todd 1993: 333–7). Metics, on the other hand, who were registered, had firm legal standing and procedural rights (Todd 1993: 194–9): they could sue as any citizen and, if they were sued, it was before the court of the Polemarkhos. Interference of Athens in other jurisdictions: Todd (1993: 329–32). But it does not become clear precisely which law was applied. See for a survey of all ancient treaties concerning trade, with the relevant literature: Ziegler (2008b). Treaties between

arranged in the conquered provinces by provincial edict, but, if Roman courts were chosen, Roman law was applied.¹² Usually the matter will have been ruled by the *lex fori*, the law of the court; in Egypt it was ordained in 118 BC that contracts written in Greek should be dealt with before Greek courts, contracts in Egyptian before Egyptian courts, but the purport of this is not quite clear.¹³ Because of that parties could choose the applicable law, provided that they complied with the eventual prescriptions of the courts.¹⁴ The Babatha archive contains documents that conform to different legal systems, and we assume that this was done just to be able to approach the different courts. It suggests such an elective practice.¹⁵ But it might also be that particular legal institutions, available only to citizens subjected to the law of the court, precluded their utilization or litigation on their effect if one of the parties was not such a citizen. Thus the *mancipatio*, a formal conveyance of property, was reserved for Roman citizens and those peregrines admitted to it. It would establish the *actio auctoritatis* for repayment of the price in case the property was claimed by and lost to a third party. The solution with a transfer to a peregrine not admitted was to agree to a stipulation for eviction, since from the second century BC the stipulation was open to Romans and peregrines alike.¹⁶ So it is not easy to find out which law applied, for example, to contracts made in first-century AD Egypt.¹⁷ To give random examples: in AD 154/5 two women in Antinoopolis, both with Greek names, one with a Greek and one with a Roman as guardian, entered a lease. All are definitively Greek. In AD 189/199 (?) one woman with a Greek name but with Egyptians as parents sells a female slave with child to another person with an Egyptian name. In this case all other names are definitively Egyptian.¹⁸ Was the first contract governed by Greek law, the second by Egyptian law? It is hard to tell

Romans and Carthaginians, on account of their commercial contacts, are found and commented on in Scardigli (1991: 71–4 on the above treaty).

¹² Liebs (2009: 456–60).

¹³ See, for Egypt, Wolff (2002: 73–4, 84–6); Rupprecht (1994: 94–7), the ordinance of 118 BC in *P. Tebt.* I.5 (= C.Ord.Ptol.53). There is no discussion of the *lex fori* in Kaser and Hackl (1996).

¹⁴ For Egypt, see Modrzejewski (1970: 347 ff.; 1988: 95—literature on provincial and vulgar law); Wolff (1976: 80–7). See further the commentary of Kuhlmann (1994).

¹⁵ *P. Yadin*, also *P. XHev/Se*. See, e.g. Lewis, Katzoff, and Greenfield (1987); Cotton (1993); Katzoff (1996).

¹⁶ The *mancipatio*, Gai. 1.119 ff., required Roman citizenship of both parties, the *libripens* and the five witnesses. The peregrines with *ius commercii* (see §3.2) were admitted to it. The stipulation, usually for the double price (*stipulatio duplae*), was enforceable for peregrines and became the standard clause with sales, until it was included in the action on sale and purchase. The doubling was probably meant as a punishment for selling goods for which the seller apparently failed to guarantee the usual *uti frui habere licere*—i.e. the uninterrupted enjoyment. If there were doubts about the seller being authorized to sell, the stipulation would be raised to the triple or quadruple to alleviate purchasers' qualms. Both contracts were *ius gentium* (see §3.3).

¹⁷ See, for a general survey, Rupprecht (1994: 95–6); Wolff (2002: 99–200).

¹⁸ Hoogendijk and Muhe (2008: nos 20, 21); *P.L. Bat.* 33.

but might be presumed.¹⁹ But, since it concerned agreements that were in Roman law contracts *iuris gentium*, they could enforce it before a Roman court (see §3.3). After AD 212, when Caracalla extended Roman citizenship to almost all peregrines within the Empire,²⁰ Roman law would, theoretically, always and in all its aspects be applicable. This has, however, been a point of hot debate ever since L. Mitteis' *Reichsrecht und Volksrecht* of 1891.²¹ Several authors assumed that, even if Roman law was imposed, local law would push its influence back and even taint the Roman law. Diocletian would have combatted this trend. It is connected with the question of what precisely the edict effected. The debate is still open, but, since it is current opinion that this grant conferred a second citizenship upon the peregrines rather than Roman citizenship instead of their original citizenship,²² it would imply that they could still conclude a contract under their own peregrine law and that it was judged according to that law by a (local) peregrine court. For Egypt a continuous application of indigenous law by the newly made citizens is indeed attested.²³ Their law was subordinate to the Roman law and incorporated into it as customary local law.²⁴ The sudden and increasing use of the stipulation clause in all kinds of Egyptian documents (even testaments) attested after 212 ('and upon having been asked he promised'²⁵), does not mean that the person declaring this wanted to apply Roman law. More likely he wanted to be sure that, if litigation was conducted before a Roman court, the document would not be declared invalid. The clause would have served as a safety measure. On the other hand, if he appealed to the governor or emperor, invariably Roman law would apply. Occasionally reference is made to regional or local law or customs, but they are applied within the framework of Roman law as far as interpretation allowed, and otherwise the *mos regionis*; and, if such a *mos* was not present, the judge had to establish the minimum of agreement (*D.* 50.17.34).²⁶ It is now

¹⁹ See Maehler (2005) for an exposition of the problems. I do not, however, share his view (p. 140) that the Romanization of Egypt was never more than a superficial varnish, right down to the end of Byzantine rule: not only because we do not have papyri from the Delta where most of the trade must have occurred; but also because we lack (sufficient) evidence of the contrary. But it goes without saying, for Egypt as well as other provinces, that arbitration may have been practised often and here preferences of parties involved will have dominated.

²⁰ See, for the edict, the so-called *constitutio Antoniniana*, Méléze Modrzejewski (1977), text and literature; new edition of the text: Kuhlmann (1994); Buraselis (2007).

²¹ Mitteis (1891).

²² Buraselis (2007: 137–8), with reference to Wolff (1976), Modrzejewski (1970; 1988: 95); Humfress (2013) with a recent survey. See also Liebs (2009: 451–6), who points out that in 212 many already lived exclusively under Roman law by virtue of living in a Roman or Latin *municipium*: Italy, Spain, most of Gaul, parts of Africa.

²³ See Rupprecht (1994: 96–7), with ample literature.

²⁴ See n. 22.

²⁵ In Latin usually of the kind *et interrogatus spopondit* (the *sponsio*, available only to Romans, now of course could be used by them), in Greek *ἐπηρώτησες ὡμολόγησεν*. See §4.8.1.

²⁶ See, e.g. *CTh* 6.1.21 (*consuetudinem provinciarum ceterarum*), 11.17.6 (*consuetudine servata regionum*), 12.1.101 (more *provinciae*); these do not concern specific private law or commercial customs, nor do others in the Theodosian Code, yet they show that there was

assumed that in the course of time Roman law slowly but irresistibly became the paramount law in the Empire, as it was, in the end, under Justinian. This will have been the result of the Roman judicial system, which would apply only Roman law (with the exception of customs, as mentioned before). It provided universal appeal from local courts and in this way forced itself upon the local situation by gentle force. But the way in which this happened may have differed from place to place and over time (for example, more rapidly in Gaul than in the Greek east), and the extent to which the local population may have experienced this may also have varied (for example, was any difference discernible with contracts *iuris gentium*?). And the use of Latin cannot be a secure indication as regards the graecophone east.²⁷ On the other hand, we see in Greek documents terms appearing that were apparently the Greek equivalents or translations of Latin legal-technical terms. Such may indicate the application of Roman law. And another, very important thing: part of the Roman law was already considered general law. The consensual contracts of sale, hire and lease, mandate and partnership, the stipulation (including personal surety) and the loan for consumption (*mutuum*; hence money loans) were all certainly from the beginning of the first century BC *ius gentium*, and so the law was here equal for and equally applicable to Roman and non-Romans.²⁸ It is clear that this aspect was very important in daily life and in commerce. However, in the area of the law of persons, and more still in the law of succession, the change must have been sensed.

3. PARTICULAR LAW AND PEREGRINES

Commerce rests upon trust, it is often said, and, indeed, where commerce is based on personal contacts, trust is very important, as is its continuation. Merchants are well known for their aversion to straight litigation. They prefer amicable solutions or swift arbitration. It will not have been different in antiquity. But there are exceptions to this. Sometimes relations turn bad, sometimes the heirs of a deceased businessman have different interests or no

room for local or regional customs. Cases of this: D. 22.1.1 pr. Pap. 2 quaest. (*usurarum modus ex more regionis ubi contractum est, ita tamen, ut legi non offendant.*); D. 25.4.1.15 Ulp. 24 ad ed. (*sed mos regionis inspiciendus est*); D. 30.39.1 Ulp. 21 ad Sab. (*In usurarum autem quantitate mos regionis erit sequendus*); D. 50.17.34. Ulp. 45 ad Sab. *Semper in stipulationibus et in ceteris contractibus id sequimur, quod actum est: aut, si non pareat quid actum est, erit consequens, ut id sequamur, quod in regione in qua actum est frequentatur. quid ergo, si neque regionis mos appareat, quia varius fuit? Ad id, quod minimum est, redigenda summa est.*

²⁷ Stolte (2009). Liebs (2009: 462–3) mentions an Armenian customary rule, contrary to Roman law, which Justinian expressly abolished in 535 and 536.

²⁸ See Kaser (1971: 202–3, 532, loan for consumption, and 546, sale). See also §3.3.

interest in the enterprise at all. Sometimes the business requires more than two persons, and a network of many persons without personal relationships comes into existence. Impersonal considerations start to be of importance. In such cases the law assumes and fulfils a useful function, since it reduces the emotions to a logical balancing of the various interests and entitlements and provides an impartial decision; but in contrast to arbitration it may take time.

3.1. Jurisdiction

The particular law of a city could contain special rules that allowed foreigners, domiciled or not, access to its legal institutions and courts, as Athenian law did for *metics*, while the *dikai emporikai*—the courts for business—were, evidently, open to all.²⁹ But whether these still existed in, for example, the first century AD is unknown. Likewise, we do not know of special courts in other towns or states. The point is often regulated in treaties. Another possibility was to appoint two judges, an indigenous and a Roman, for cases between a citizen of the foreign town and a Roman: such a practice existed in 132 BC in Sicily.³⁰ It was applied again under the Goths (see §§3.2 and 3.3). There was within the Roman administration no special court or procedure for commercial disputes. The civil procedure was the *formula*-procedure, which was slowly taken over by the *cognitio*-procedure. The latter was used for private law, criminal law, and administrative law cases.

3.2. *Ius commercii*

In early Rome the legal institutions such as the *mancipatio*, the formal conveyance of property, or ownership as such (*dominium ex iure Quiritium*), and litigation, done by way of the *legis actiones*, were restricted to Romans. The way to allow peregrines access to these was to accord to neighbouring peoples, particular the Latins, the *ius commercii*, the right to certain Roman acts, useful for trade, such as in case of a sale to acquire or transfer property through *mancipatio*. This happened to the twenty-nine towns of the Latin League, in 493 BC.³¹ Similarly the *ius commercii* was necessary to give foreigners access to litigation, done by *legis actiones*.³² We do not know whether the Romans had a similar corresponding right in Latin towns. The *ius commercii*

²⁹ Todd (1993: 194–9).

³⁰ Kaser and Hackl (1996: 167–8).

³¹ See, on this treaty, the *Foedus Cassianum*, Kremer (2005).

³² Kaser and Hackl (1996: 35–6), since the *legis actiones* were based on statutes and therefore were *ius civile*, which was proper to Romans only. See Mayer-Maly (2003) on the various meanings of *commercium*.

could also be conceded to other peoples or to individuals. But after the almost universal grant of Roman citizenship in AD 212, it merely had importance for Junian and other Latins.³³ As already stated, it is not certain that this grant led to a cogent universal application of Roman law. Then, there were different courts as well, and parties could apparently choose their venue.

In litigation, the importance of the *ius commercii* dwindled after the introduction in 242 BC of the *praetor peregrinus*,³⁴ who had jurisdiction over disputes between Romans and peregrines, and between peregrines, and by the introduction of *formulae*, made equal to the *legis actiones* by the *lex Aebutia* of c.150 BC and appearing in 17 BC to be the general procedure.³⁵ Basically litigation was now open to peregrines. But did it imply for them full equalization with the Romans? Arguably they will have had access only to those actions that concerned *ius gentium* (see §3.3), but these were specifically very important for commercial activities (see above).³⁶ The *cognitio extraordinaria*, the procedure in which the magistrate both granted access to litigation and examined and judged the case, developed later on in the Principate, first in the provinces. It did not prescribe *formulae* and thus offered a procedural alternative to the *formula*-procedure. In the end it gained the upper hand: in AD 342 the *formulae* were abolished.³⁷ This procedure did not distinguish between litigants. This applies also to those cities in which Rome had restored or allowed local jurisdiction.³⁸ There was never a law of procedure, specific for commerce, nor commercial tribunals like the *dikai emporikai* in the Roman state: trade used the existing procedure.

As to substantial law, as long as *mancipatio* endured as a form of conveyance (though probably only as a verbal formality after the fourth century³⁹),

³³ A slave, manumitted in an informal way, did not become a Roman citizen but became, by virtue of the *lex Iunia*, a coloniary Latin with very restricted rights. The *ius commercii*, attached to this status, enabled him to function legally in private law and commerce as a Roman. The children of a Junian Latin, as the Latins created by legal provisions such as *CTh* 4.12.3, would be freeborn coloniary Latins and thus would also need and have the *ius commercii*. Justinian abolished this Latinity in 531 and let them become Romans. See Sirks (2010).

³⁴ Kaser and Hackl (1996: 172).

³⁵ See Kaser and Hackl (1996: 151, 159, 161: *leges Juliae* of 17 BC), with the exception of two cases, unimportant here.

³⁶ Kaser and Hackl (1996: 207) merely assert that they could sue by formula alone. Yet, if one interprets this without restriction, the distinction between *ius civile* and *ius gentium* would lose all meaning. Indeed, Kaser and Hackl (1996: 155–6) mention for the ‘Fremdengerichtsbarkeit’ (competence as regards foreigners) the sale and other consensual contracts, as well as the *fideipromissio* (a stipulation), the money loan (*mutuum*), the liability for wrongful damages (here, however, through fiction—see *Gai.* 4.37 with an example), and a possible preservation of proprietary rights; no more. However, the connection with the *ius gentium* character is not explicitly made, but was presumably with the authors (cf. Kaser and Hackl (1996: 154)).

³⁷ Kaser and Hackl (1996: 171 for the abolition of the *formulae*, 436 ff. for the *cognitio*).

³⁸ See Kaser and Hackl (1996: 167–77) for the restoring or acceptance of non-Roman jurisdiction.

³⁹ See n. 41 on the Ravenna papyri.

and also the *dominium ex iure Quiritium*, the *ius commercii* would theoretically remain significant, not only for Latins, but also for barbarians in the Later Empire,⁴⁰ to whom it might have been granted. But it is doubtful whether in practice these qualities were still consequential in the Later Empire. Outside of Italy land was only exceptionally conveyed by *mancipatio* (perhaps only where a town had the *ius Italicum*, see *D.* 50.15.1). It will merely have had significance for the conveyance of ownership of slaves. Justinian abolished in 531 the differentiation between *res Mancipi* and *res nec Mancipi* and removed all references to the *mancipatio*; all goods now could be usucapted and become *dominium ex iure Quiritium* (*CJ* 7.31.5). Thus, when in the Ravenna papyri Goths acquire or sell Italian land, full ownership is acquired.⁴¹

3.3. *Ius gentium*

The *ius commercii* was thus an effective, clearly defined and controllable way, as were treaties, to open legal relations between Romans and certain peregrines or groups of peregrines. But it required a special act or grant to establish it and as such it was not flexible. Until the Social War (90–88 BC) the Romans governed many peregrines in Italy. It was not always possible to establish the private law system of a foreigner. Probably for that reason another way to facilitate international private legal relations was introduced: the *ius gentium*. It means in this context⁴² that certain legal figures, or, better, certain actions, were available to Romans and all peregrines alike. It is only later, at the end of the Republic, that *ius gentium* is used in another way as well—namely, as the ‘law common to all’, which ‘all’ included the Romans. It is then used to rationalize the existing *ius gentium* institutions.⁴³ The result was that parts of the Roman law were at the same time considered both Roman and *ius gentium*. It is striking that these parts concerned institutions useful for commerce and financing. They concern, first of all, the contracts of sale (*emptio venditio*), hire (*locatio conductio*), mandate (*mandatum*), and partnership (*societas*), as well as loan for consumption (*mutuum*, particularly used for money loans). The first four are based on good faith (*bona fides*), the basis for

⁴⁰ I restrict myself here to those parts of the substantial law important for commerce.

⁴¹ Edited by Tjäder (1954; 1955; 1982): e.g. in *P. Ital.* 30, of AD 539 or 546, two Gothic ladies transfer land by *mancipatio*. But in 535 Justinian had introduced his codification in Italy and abolished the difference between *res Mancipi* and *res nec Mancipi*, and extended *dominium* over all provincial land. Hence the *mancipatio* will have been no more than an empty form.

⁴² See, for different meanings Kaser, (1971: 202–5) and Honsell, Mayer-Maly, and Selb (1987: 57–60).

⁴³ Kaser (1971: 202–4).

the *ius gentium* since international relations were based on *fides*.⁴⁴ These contracts were of the utmost utility for ancient commerce. Mandate was necessary to handle affairs over a long distance, and partnership was invaluable to aggregate labour, capital, and connections. The *mutuum*, a loan for consumption, a real contract, was mostly used for money loans. The verbal contract of *stipulatio*, stipulation, a binding promise, was made accessible to peregrines in the forms of the *fideipromissio* and *fideiussio*, also *ius gentium*. It was a formal contract, but the formalities were restricted to the question-and-answer form, with the use of the same question verb, and its contents could cover anything contractable, including personal surety. Whatever could not be done through one of the contracts mentioned before could be done by stipulation. For example, the purely generic sale of so many *modii* of Egyptian grain, could not be done through *emptio venditio* (which was essentially a barter sale) but was done by stipulation. But it was also used for personal surety (*cautiones*). With sales, the stipulation warranting against eviction became standard (the *stipulatio duplae*⁴⁵). Both *mutuum* and stipulation were contracts of strict law: the obligation was defined by the contents of the contract and could not be extended on account of good faith with other obligations (nowadays called secondary or implied obligations). Further, the conveyance of *res Mancipi*, otherwise done by *mancipatio*, was, if done by a *traditio ex iusta causa*, a valid conveyance in *ius gentium* and so peregrines could in Roman law acquire bonitary property of, for example, slaves. Peregrine buyers could not acquire full Roman ownership (*dominium ex iure Quiritium*),⁴⁶ but they were protected in any case against a claim from the seller by the exception that the thing had been sold and delivered; and perhaps the magistrates granted them an action on the case.⁴⁷ The acceptance of *ius gentium* will not have implied that non-Roman law was applied. It must merely have meant that peregrines could sue or be sued in these cases before a Roman court, while the case would be judged according to the Roman views on these parts of the law. *Ius gentium* also did not imply that the same

⁴⁴ On *ius gentium*, see, *inter alia*, Ziegler (2008a). *Ius gentium* comprises both the international law of war, peace and treaties, and the international private law, appears from D. 1.1.5 Hermog. 1 iuris epit. *Ex hoc iure gentium introducta bella, discretae gentes, regna condita, dominia distincta, agris termini positi, aedificia collocata, commercium, emptiones venditiones, locationes conductiones, obligationes institutae: exceptis quibusdam quae iure civili introductae sunt*: an early fourth-century AD definition, accepted in the sixth century by Justinian. Both elements are based on the fidelity or faithfulness with which given promises or concluded agreements are to be kept (cf. Cic. *De off.* 1.7/23: *iustitiae fides, id est dictorum conventorum constantia et veritas*).

⁴⁵ See n. 16.

⁴⁶ See §4.2, for this and for bonitary ownership.

⁴⁷ Which implies that they could not reclaim their purchase if lost by the *actio Publiciana*, since this implied an ongoing *usucapio*; but they could ask the seller to exercise his vindication for them; or, if they had been evicted, not being able to raise the defence of *iustum dominium*, nor their seller being able upon request to ward off the revindication, claim double the price on ground of the *stipulatio duplae*.

institutions existed among peregrines. For example, the stipulation was most likely typically Roman. Next to this it was possible to insert a fiction into the formula, such as *si civis Romanus esset*, if that seemed appropriate. By this a non-Roman was treated as if a Roman.

After the almost universal grant of citizenship in AD 212, the distinction between particular Roman law and the *ius gentium* may seem superfluous,⁴⁸ but there always were and remained business relations with foreign regions such as Germany, the Black Sea and Caucasus regions, Parthia, and the Arab and Far Eastern world. Further, after the fourth century, foreign tribes such as the Burgundians and Goths settled within the Empire as *laeti* and retained their own law, thus being and remaining peregrines. It meant a return to the personality principle as regards private law. Particularly with the latter, legal issues and litigation are not unthinkable, and Cassiodorus relates how Theoderic ruled that in intergentile cases both a Roman and a Goth had to be judge.⁴⁹ Further, the Romans partly granted the Jews their own jurisdiction, though later on (AD 398) restricted to religious questions.⁵⁰

3.4. Arbitration

A way to avoid the problems regarding the applicable law was to agree to submit one's differences to a private court: arbitration.⁵¹ The parties involved would agree in their agreement (called *compromissum*) to submit their case to one or three arbiters whom they appointed and who would give their judgment. This way left them complete freedom as to the law to be applied. The arbitral judgment could not be enforced as such, it was after all a private matter, but by including in their *compromissum* penal clauses parties could remedy this. These clauses, if done in the form of a stipulation, were enforceable for peregrines and Romans alike before any Roman court. Arbitration will have played a larger and perhaps much larger role than the legal and papyrological sources show.⁵² The later and much discussed *episcopalis audientia* was most likely a special kind of arbitration, possible only if both parties agreed.⁵³

⁴⁸ The probably excepted category of *dediticii* will have been small and commercially unimportant.

⁴⁹ Theoderic the Great (454–526), in Var. 3.13, 7.3: application of the correct personal law; the count must judge cases between Goths himself, between Romans by Roman *cognitores* (judges), between a Roman and a Goth by himself together with a Roman.

⁵⁰ Kaser and Hackl (1996: 640–1).

⁵¹ On arbitration in general, Kaser and Hackl (1996: 56–60); Roebuck and De Loynes de Fumichon (2004).

⁵² See Kaser and Hackl (1996: 639–40).

⁵³ Kaser and Hackl (1996: 641–4). Though Sirm. 1 of 331 suggests that already by unilateral desire a case may be decided by a bishop, *CTh* 1.27.1 of 318 and 2 of 408 require a *compromissum* by both parties. However, Sirm. 1 may be corrupted or falsified.

In view of the dearth of sources for law, other than the Roman law, and of the period under investigation, I shall hereafter basically consider Roman law, and where appropriate refer to Greek—that is, mainly Athenian—law; but there our sources date primarily from the fourth century BC, and it is not certain whether the same rules applied in, for example, the second century AD.

4. LEGAL DEVICES USEFUL FOR COMMERCE

I have already mentioned the legal institutions of Roman law that were at the same time *ius gentium*. In the following I shall not fully deal with each legal institution (for which I refer to the textbooks⁵⁴), but restrict myself to pointing out those aspects and features that had or may have had commercial relevance. We keep to the Gaian division between contracts and delicts, each with its Justinianic subdivision of quasi-contracts and quasi-delicts; the *recepta*, innominate contracts and pacts; the *actiones adiecticiae qualitatatis*. Ownership and possession are dealt with under sale. Regarding the contracts, we have first the consensual contracts: sale, hire, mandate, and partnership.⁵⁵

4.1. Purchase and sale (*emptio venditio*)

Sale is a typical commercial contract and the most important one.⁵⁶ It is used in trade, both small and large scale, in agricultural exploitation (selling in bulk and in retail the products of the land, be they crops or industrial products such as pottery or roofing tiles). For the sale of specific or individualized goods the contract of *emptio venditio* was used; the pure generic sale could be done only by way of stipulation (see § 4.8.1). The Romans were conscious of its great resemblance to exchange, which is of course the earliest form of commercial activity. They distinguished clearly the agreement between parties (*consensus*) that they wanted to sell and buy as the determining element, together with the object that one party (the seller) was to deliver to the other, and—in distinction to the exchange proper—the price that the other party (the buyer) had to pay in money, on both of which parties had to agree as well. There were two reasons for their making this distinction, grounded in their procedural system of actions: first, for sale there were specific actions for the seller and the buyer, and a distinction was required; second, exchange did not have specific actions

⁵⁴ Such as Kaser and Knütel (2003); see also Kaser (1971; 1975); Buckland and Stein (1975); Honssell, Mayer-Maly, and Selb (1987). The first is revised and updated as regards literature; Buckland and Stein do not reflect the extensive post-war scholarly discussion.

⁵⁵ Kaser (1971: §§130–4).

⁵⁶ Kaser (1971: §§130–1).

but only a general action of the case, which was granted only after one party had performed its obligation.⁵⁷ It is assumed that the basis for the rules on sale was the barter sale, where both performances are made simultaneously, and, if so, the perceived similarity with exchange is understandable. This origin would explain as consequences two features of the *emptio venditio*. First, this contract could concern only specific objects, not generic goods. Second, in the moment of consent the risk of the object passed to the buyer, as if it had been delivered at that moment, even if this was not the case.

The risk would not yet pass if it concerned goods not yet individualized—for example, ‘thirteen wine amphorae of your stock’. Here the amphorae had first to be chosen by the buyer, and at that moment the risk would be transferred. But, if the contract was done *per aversionem*, or *aversione*, it was different. *Aversio* is used in sale as well as in hire and lease. It means ‘as a whole’. So one can buy and sell all the wine in a cellar ‘as a whole’ (D. 18.6.4.1–2), of course for a single price, and the risk passes in a sale *per aversionem*, though the goods have not been assigned (D. 18.1.62.2). Similarly with a building contract: if this has been contracted *per aversionem*, the risk is with the contractor until it has been approved (D. 19.2.36). If a ship of a certain capacity has been hired *per aversionem*, the hirer has to pay for the full capacity, even if he has not used this completely (D. 14.2.10.2). These cases evidently concern contracts of commercial interest, particularly with sale, as it will have been operated by wholesale merchants.

There were some edicts regulating certain market sales, which later on became standard conditions of these sales. These are the aedilician edicts on selling slaves (*de mancipiis vendendis*) or cattle (*de iumentis vendendis*), which required the seller to publicize the defects of his ware. If unadvertised defects that had not been recognizable and identifiable for the buyer turned up (D. 21.1.1.7–21.1.15 gives an astonishing catalogue), the buyer had recourse to two further aedilician edicts: the *actio quanti minoris* and the *actio redhibitoria*. He could choose either to keep the ware but have the price reduced (the *quanti minoris*) or to void the entire deal and return the ware, in exchange for the price he had paid (the *redhibitoria*). Both remedies had to be invoked within a short period: one year, and six months, respectively.

The barter sale will originally have been performed between Romans, when concerned with *res Mancipi* and *res nec Mancipi*,⁵⁸ in the form of the *mancipatio*, which established *dominium ex iure Quiritium*; if not between Romans

⁵⁷ D. 18.1.1 pr. Paul. 33 ad ed.

⁵⁸ *Res Mancipi* were those things of which ownership could be transferred only through the formal conveyance of the *mancipatio*. They were: land in Italy (with buildings on it), servitudes, slaves, and *quadrupedes pecudes*, in short: what one used in the exploitation of farms. Of course, *usucapio* after transfer of possession, on ground of a just title, would also lead to quiritary ownership.

only, or concerning *res nec Mancipi*,⁵⁹ it could be done without set formalities by simultaneous payment and delivery. But in the course of time payment and delivery could be postponed, and a sale was valid as soon as consent was reached on price, object, and the aim—that is, a sale; while the *mancipatio* evolved into a formal conveyance without the necessity of a delivery. Sale established two obligations: a duty of the buyer to pay and a duty of the seller to provide unconstrained possession of the sold thing. It is the latter that is of importance for commerce.

4.2. Possession and ownership by transfer

Possession in the sense of actual control of a corporeal asset is the purpose of sale. The purchaser expects transfer of possession, and the seller is obliged to this. Possession as such is a matter of fact, and a possessor, Roman or non-Roman, was protected in Rome by possessory interdicts, for which he could apply from the praetor or magistrate if possession was taken away from him. They restored his possession.⁶⁰ But the implied idea is that this possession will be and remain unconstrained. To provide ownership in the sense of an exclusive and perpetual right to possess a thing⁶¹ depends, however, on the legal regime the buyer lives under. How might a Roman provide an Alexandrian with ownership of a slave, an important commercial commodity, for example, on the island of Delos, where a great slave market existed? That would depend on the private law of Alexandria (of which we know little). And, if the Alexandrian lived in Rome, he could not acquire ownership under Roman law, since he was not a Roman and did not have the *ius commercii*. A duty to provide ownership such as some modern codes prescribe would be impossible and impractical. Besides, unconstrained possession would achieve the desired effect. It therefore became custom that the seller guaranteed the buyer unconstrained possession: if the buyer was nevertheless deprived of this, he at least got the price back plus the equivalent sum in compensation. In Rome this was done by stipulation for the double (*stipulation duplae*; it could also, but seldom, be for triple or quadruple value, depending on the chance that the object might be reclaimed), which was also available to non-Romans (see below). But this was a second-best solution, since the buyer would still lose possession. Acquiring a permanent right to possession would be better.

⁵⁹ There is no reason why two Romans might not have performed the *mancipatio* over a *res nec Mancipi*, even if it was not prescribed: it would have established *dominium ex iure Quiritium* at once; it could have left possession with the seller.

⁶⁰ The interdicts *uti possidetis* for immovables and *utrubi* for movables. The praetor did not distinguish here between Romans and non-Romans. See Kaser and Hackl (1996: 413–14).

⁶¹ A usufructuary would also have an exclusive right to possession, but only for the period of the usufruct. Ownership, on the other hand, is timeless.

Whether the buyer acquired a right to possession, which we would call ownership, would depend on his personal legal status. Roman ownership carried entitlement to the *reivindicatio*, the action by which property could be reclaimed. Romans would acquire this through (a) *mancipatio*, which in the case of *res Mancipi* was mandatory,⁶² or (b) in the case of *res nec Mancipi* through the delivery of possession (*traditio*), the will to possess as if owner and the honest belief of being entitled to possession at the moment of delivery on the basis of, for example, a contract. In the case of sale, the requirement was that the buyer had to be *bona fide* at the moment of agreement and at the moment of delivery—i.e. honestly believing that the seller was exclusively entitled to the thing transferred. With *res Mancipi*, a *traditio* would lead not to Quiritary (Roman) ownership but to the purchaser having the thing *in bonis suis*—that is, among his assets—and he could dispose of the *actio Publiciana* instead of the *reivindicatio*. The *actio Publiciana* was granted to him who had acquired possession *ex iusta causa* and *bona fide*, in the first place the *bona fide* purchaser, in order to reclaim possession.⁶³ This position is called *in bonis habere* or bonitary ownership. Gaius speaks here of a double ownership. Further, Roman possessors with a just cause (like buyers) would always acquire a title to ownership through *usucapio* (i.e. undisturbed possession over one or two years), which gave them a title independent of their predecessor. In the provinces a solution similar to *usucapio* was found for those, Romans and non-Romans, who bought immovables that, formally, belonged to the emperor or the Roman people. They could oppose after possession for a long period a *praescriptio longi temporis* to anybody claiming their purchase.⁶⁴

For non-Romans without the *ius commercii*, the situation regarding movables and land in Italy is not clear. Non-Romans without *ius commercium* could not usucapt; consequently they would not have had the *reivindicatio* available to them. They would have remained *bona fide* possessors, with probably a *iusta causa* for their possession (such as sale, exchange, or gift). Since the asset was among their goods—that is, in their *bona*—there is no reason not to consider them as bonitary owners as well, but of a different kind from the usucapient Romans. An argument for this is the *actio Serviana* by which the creditor-pledgee could claim the pledge from any possessor. Such a pledge was valid only if its object was in the *bona* of the debtor (*in bonis eius*). It is not conceivable that peregrines in commerce would not have been able to give real security, and so this formula must also have applied to them. They would have enjoyed in any case interdict protection and probably an action

⁶² See further n. 56; the less cumbersome method of *traditio* might naturally be preferred. The *mancipatio* may have been developed to make the transfer of *res Mancipi*, presumed to have been originally inalienable, possible.

⁶³ *Ex iusta causa*: of course, purchase was a just cause to possess, but, e.g. an exchange, gift, or legacy as well.

⁶⁴ Kaser (1971: 418–25).

modelled after the *rei vindicatio* with the variant *in bonis eius esse*, in order to regain possession, an action modelled after the *rei vindicatio*; or perhaps this was also covered by the *actio Publiciana*. Against a property claim of the seller, they were certainly protected: they could raise the exception that he had sold and transferred it to them.⁶⁵ The situation in the west under the Germanic rulers is obscure. In the Ravenna papyri Goths apparently own and transfer land in full ownership (see n. 40). In the east, and after 535 in the western parts of his Empire, Justinian had abolished the difference between *res Mancipi* and *nec Mancipi*, and declared that provincial land was held in *dominium*, which made the adjusted Byzantine rules of *usucapio* applicable to these lands. See §4.11 for the so-called originary modes of acquiring ownership.

The requirement of bona fides in sale at two moments is unique. In other cases such as gift it sufficed that the receiver thought in good faith at the moment of transfer that the transferor was entitled to alienate. If that later appeared not to have been the case, his title to possession was not affected, nor was his *usucapio*. The reason for this particularity may derive from the original form of sale, the barter sale. An argument for this is that originally the price also had to be paid to enable the buyer to acquire ownership; but later on credit sufficed. In any case, the *usucapio* began to run from the moment of transfer.

4.3. Joined agreements (*pacta adiecta*)

Any special agreement, if joined with a bona fide contract, could be enforced with the action of the contract (otherwise not).⁶⁶ But with sale there were three special agreements (*pacta adiecta*), which allowed one of the contracting parties to resile from the sale and which were important in commerce. The buyer could resile on the basis of the *pactum displicentiae*, the agreement to have the object on approval. The seller could resile by the *lex commissoria* if the price had not been paid by an agreed moment, and by the *in diem addictio*

⁶⁵ In any case later for the entitlement to provincial land, probably without the phrase *ex iure Quiritium*, or with *uti frui habere (licere)*, see Kaser (1971: 439, §104.III); but why not also for non-Romans in Rome and Italy? Kaser (1971: 402, n. 10) suggests that possession by peregrines was protected by the Roman magistrates, modelled after Roman actions and based on *eius esse* without *ex iure Quiritium*. A vindication with the fiction of citizenship is not indicated by our sources. Kaser's suggestion is interesting but raises problems too, which cannot be discussed here. As regards the *Publiciana*, its formula is unknown. It certainly referred to a *traditio ex iusta causa*, and to a bona fide sale. If it contained a reference to the object not yet being usucapted, it might merely mean that it was not applicable if *usucapio* had taken place; it does not have to mean that the applying person should be able to usucapt. It was modelled after the *reivindicatio*. See Lenel (1927: 169–73). If the seller was still a Quiritary owner and claimed the object, the purchaser could oppose the *exceptio rei venditae et traditae*; against a third-party Quiritary owner he would have been defenceless (but he had the *stipulatio duplae*), unless the praetor helped him by denegating the action or granting an *exceptio doli*.

⁶⁶ Kaser (1971: §131.III.1).

if within a certain period he received a better offer. The latter allowed the seller to extend in time the range of potential bidders, and this agreement will have been used mostly in the sale of real estate (e.g. *P. Oxy.* III.513, AD 184).⁶⁷ The *lex commissoria*, the condition that the sale was dissolved if the price was not paid at a certain moment, will have been useful in trade, since it invalidated the contract and released the seller from his duties, allowing him to revindicate his property at once in case of *traditio*.

4.4. Auction (*auctio/licitatio/ad hastam*)

A particular kind of sale was the auction, which was well organized and rather common among the Romans. Perhaps the fact that all civil condemnations were pecuniary condemnations and, if the defendant did not opt for a *clausula arbitraria* (the restitution clause) or had no money ready, led to a volume of forced sales made this type of industry—since we see people professionally occupied with auctions—worthwhile. Bankers were also involved in this industry, since they could provide advances (see §5.4). The fisc always sold by way of auction the assets of its defaulting debtors. The difference from a normal sale is that the first bidder has not yet concluded a contract: the auctioneer concludes a contract with the highest bidder and only at the moment when the time open for bidding is over. Further, it was not unusual to add the clause of *in diem addictio* (see §4.3) to these sales in order to maximize in time the revenues of the auction.⁶⁸

4.5. Lease and hire (*locatio conductio*)

This contract was first and foremost used in agriculture and formed part of the husbandry of the great landowners and the public bodies that let out land, and where also land labourers were hired.⁶⁹ But its commercial use was far from negligible. The Roman state farmed out public works and provisioning of the armies and public distributions. Because of the size of these contracts, their commercial interest must have been great (see also §4.7). Further, cargo and passenger space on ships was let or rented and was also the object of commercial activity;⁷⁰ and all kinds of artisanal production were done by way of this contract. It is well attested in the papyri.

⁶⁷ See Sirks (1995).

⁶⁸ Kaser (1971: 547, 561); Cerami, Di Porto, and Petrucci (2004: 128–9).

⁶⁹ Kaser (1971: §132).

⁷⁰ Meyer-Termeer (1978) deals with commercial transportation over the Nile.

We find a special kind of hire contract, however, in shipping: the *locatio conductio in perpetuum* (D. 14.1.1.15), in Greek the *misthoprasia*, literally 'lease-sale' or 'hire-purchase'. In several papyri this kind of lease is documented—for example, in *P. Oxy.* XVII.2136, of AD 291, a lease for sixty years, at a one-off payment of 3 talents and 3,000 drachmas. Such a sum is large, and the question has been raised for this and other cases as to what the precise nature of this contract will have been, and who bore the risk.⁷¹ But such contracts will have been of interest only for those professionally engaged in commerce or a trade, in view of the long-term use.

Contracts could contain special agreements, and one agreement was dealt with separately in law: the *receptum nautarum* for sea transport (see §4.8.4).

Another application of *locatio conductio* was contracting. The contractor was the *conductor*, while the person or instance contracting out was the *locator*. Particularly construction (public and residential buildings, aqueducts, roads) will have been of commercial importance,⁷² but few legal texts specifically deal with this.

4.6. Mandate (*mandatum*)

Mandate was the contract in which one party, the mandator, asked the other party, the *mandatarius* or mandatary, to undertake gratuitously the performance of a service.⁷³ The mandatary was bound by this and could not exceed the limits of his mandate (otherwise it was his risk), but had a claim for the necessary expenses, while the mandator could claim the revenues of the performance. Such a contract was of great importance for commerce, because it facilitated the transacting of business in faraway places in case a direct representation by a person in power was impossible. It could be applied to business transactions such as selling or buying, or letting or renting, but also to financial transactions. The mandate to give a third party a loan, a so-called credit-mandate, must often have been used. The mandatary thereby became the creditor of the third party, but the mandator had, in case the debtor failed to repay, to reimburse the mandatary for all losses that were due to the failure of the debtor to pay. Potentially his liability was greater than the loan itself and than it would have been with a security through a stipulation (which was usually fixed at a certain amount). The mandate functioned here as a personal security.

⁷¹ Purpura (1988); Jakab (2008); from a non-legal angle: Rathbone (2007).

⁷² See, for a survey of what building in the widest sense (buildings, bridges, roads) technically implied, Giuliani (1990).

⁷³ Kaser (1971: §134).

4.7. Partnership (*societas*)

Far more than nowadays the contract of partnership was important in commerce.⁷⁴ Any enterprise (*negotiatio*) could be done by one person, but the larger enterprises required some form of cooperation, if only to accumulate sufficient capital.⁷⁵ Indeed, it was, next to loans, the main form of accumulating capital needed for investing and trading. Several partnerships are known specifically from the sources (*societates publicanorum, venaliciarum, argentariorum*, and *exercitorum*—that is, of tax farmers, slave traders, bankers, and shipowners), but there were of course far more,—for example, of fish-sauce (*garum*) producers. Two or more persons could form a partnership by mere consent, even a slave (*D. 17.2.18*). It was possible to appoint a manager.⁷⁶ The partners were very free in what they consented about, and partnership was therefore a very flexible form of organizing a business. We find indeed a multitude of applications, be it an ongoing business, a single business enterprise, or even a *societas omnium bonorum* (a partnership of common property).⁷⁷ If they had not decided otherwise, they would share in equal parts losses and gains; and every partner would bring all his assets into the community of property (*societas omnium bonorum*). It was *ius gentium*, and therefore Romans and non-Romans could participate, as could slaves (who would need the consent of their masters to bind them). By selling such a participating slave, his master should have been able to transfer his participation (a term much better suited to describe this than ‘share’, which suggests transferability). The possibility is indeed raised but, with some hesitation, rejected (*D. 17.2.58.3*)—understandably, since the existing partners could be confronted with a new partner they had never wanted to cooperate with. (But perhaps the hesitation indicates that it could be done if the partners did not mind?) Partners could invest capital but also personal effort. Participations could be different, but what was not allowed was to let a partner suffer only losses. A participation could, notwithstanding the just mentioned suggestion, not be transferred;⁷⁸ a partnership ended automatically with the death, *capitis deminutio*, or insolvency of a partner; or because a partner announced the wish to end it.

⁷⁴ Buckland and Stein (1963: 515–18); Kaser (1971: 577–83); Cerami, Di Porto, and Petrucci (2004: 61–3); Fleckner (2010: 119–43, 245–62, 339–72, 444–50).

⁷⁵ See Sirks (2007) for the increase in scale required for the transportation for the *annona* of Rome.

⁷⁶ Fleckner (2010: 245–62).

⁷⁷ See Meissel (2003: 17–20). Examples: olive oil, wine, slave trade, carpentry, teaching, ship transport, financing.

⁷⁸ Fleckner (2010: 444–50).

The most prominent partnerships were the *societates publicanorum*, the companies that farmed the collection of taxes, or undertook public works or transport for the armies.⁷⁹ Here too managers could take care of the daily business.⁸⁰ In this case, the death of a partner did not dissolve the company: his heir would take his place till the end of the public contract. It is evident that this exception was for reasons of public policy. As such these *societates* did have a 'soft' kind of legal personality (in modern terms): they had a common treasury (*arca*), common property, and a legal attorney (syndic: *syndicus*) who represented the *societas* in law. There was not, nor could there have been, a stock market or stock traders in Rome, nor were there transferable shares, as has erroneously been maintained (participations is a better designation).⁸¹ But next to these companies there must have been many partnerships in commerce, in view of the many references in the *Digest*; actual cases are the partnerships of the wax writing tablets from Dacia.⁸²

Consequently the structure of partnership was not suited for a continuous investment in an enterprise, as the modern company with limited liability and transferable shares is. That does not mean that the Romans did not have a need for such a structure. Normally a partnership will have been continued in a new partnership between the remaining partners, who would pay off the existing partner or his heirs, or would admit his heir. Since partnerships were often personal, one party was not always keen on an 'automatic' succession by an heir. Commerce often required investments on a larger scale (the largest probably having been those of the *societates publicanorum*) and preferably a spreading of risks (as we see in §§5.4 and 5.5, with financial devices that called for continuation).⁸³ And it was possible to agree that the partnership was not dissolved before a certain date. Such an agreement even had an absolute effect as concerned third parties.⁸⁴

Thus a third party who contracted with a partner could sue only this person and not the others. The exception to this rule was the banking partnership. Here each partner was liable for any debt engaged by any other partner, apparently on the assumption that any debt engaged by a partner was engaged by all (by agreement).⁸⁵ The same rule applied if several persons were involved in slave trading or exploiting a ship (*exercitores*), evidently as partners.⁸⁶

⁷⁹ Cima (1981); Malmendier (2002); Fleckner (2010: 145–217, 262–92, 372–420).

⁸⁰ Fleckner (2010: 262–92).

⁸¹ Lately by Malmendier (2009: 719–36). This thesis has convincingly been proved wrong by Fleckner (2010: 450–94, on Malmendier: 471, n. 102).

⁸² e.g. *CIL* III, p. 950, no. XIII. See, for these, Sotropa (1990).

⁸³ See Meissel (2002), illustrating the liquidation of a small business venture.

⁸⁴ Meissel (2003: 21).

⁸⁵ Meissel (2003: 23).

⁸⁶ Meissel (2003: 23).

4.8. Other contracts

4.8.1. Verbal contracts: stipulatio—promise

Roman law knew three kinds of formal promise, *sponsio*, *fideipromissio*, and *fideiussio*, of which the last one, the stipulation, was the commercially important one, since it was *ius gentium*.⁸⁷ It was effected in the form of a question that contained all elements considered of importance to the asking party, to which question the other party only had to agree. The formalities of stipulation were rapidly reduced to one in the early Principate: that the verb used for ‘promise’ in the question was also used in the reply (like: *promittesne? promitto*). It implied the actual presence of promisor and promisee. The contract was further one of strict law, which means that the promising person was exactly bound to what he had promised, not less, not more. If the promise had no reference to the reason for the stipulation, the judge could not take account of circumstances relating to that; but, if it referred to it, he could consider those as well. As to what the promise contained, parties were at full liberty (apart, of course, from immoral deals). Thus the contract was fit for any kind of agreement, as long as the single formality of the stipulation clause was kept.⁸⁸ It is no surprise to see stipulations abound in the legal and other sources. It was also not uncommon to combine a contract, in itself already enforceable, with a stipulation, to bolster enforceability (cf. *D. 17.2.71 pr. Paul. 3 epit. Alf. dig.*, where a partnership to teach is reinforced by a stipulation that incorporates the agreement and that adds a penal clause).

Often the debt was constituted by a stipulation or stipulation clause, as in *TPSulp. 52*.⁸⁹ In this wax tablet from Pompeii, Gaius Novius Eunus writes

⁸⁷ Kaser (1971: §128).

⁸⁸ See Simon (1964). It had everything in it to become the general form of contract, but it did not in the end.

⁸⁹ *TPSulp. 52*, preserved in the eruption of the Vesuvius in AD 79. *C(aio) Cessasare Germanico Aug(usto)/Ti(berio) Eunni Ti(berii) Cessaris Augusti/l(iberti) Primiani ser(vo) [muta] et/debere ei sestercia tra milia/nummu pret(er) alia HS X n(ummum)/que alio chirographo meo/eidem debo et ea sestertia/tra milia num(mum) {nummu}/q(uae) s(upra) s(crypta) s(unt) p(roba) {r(ecte)} re-cete dari/stipulatus ets Hessucus Euni/Ti(berii) Cessaris Augusti l(iberti) Primiani/ser(vus) spepondi ego C(aius) Novius Eunus/in qua ominis suma dedi ei/pignoris trigidi Alxadrini modi/um septe mila quot est possi[um]/in horeis Bassianis puplicis Putola[nor(um)]/medis horeo duode[cimo] et sacos ducen[t]/os lentis c[ice]r[is...]+ issi monocopi/et faris in quibus sunt modi-um/quatuor milia qui sunt possiti in/isdem horeis que ominia ab omini/vi priculo meo est fator./Actum Putolis. — ‘In the consulate of Gaius Caesar Germanicus Augustus and Tiberius Claudius Germanicus, 6 days to the Nonae of July [2 July, AD 37]. I, Gaius Novius Eunus have written that I have received a loan from Hesychus, slave of Evenus Primianus, freedman of Tiberius Caesar Augustus and owe him the sum of 3,000 sesterces, next to another sum of 10,000 which I owe him by another chirographum by my hand, and Hesychus slave of Evenus Primianus, freedman of Tiberius Caesaris Augustus, has formally asked for these 3,000 sesterces which are above written to return rightly and sound, and I Gaius Novius Eunus have formally promised; regarding this sum I have given him as pledge 7,000 modii of Alexandrian wheat, which is deposited in the Puteolan public Bassian storehouse, in the middle one, store 12, and 200 sacks of lentils, chick-peas... monocopi*

that he has borrowed from Hesychus, the slave of the imperial freedman Evenus Primianus, the sum of 3,000 *sestertii*. This loan is confirmed by a stipulation that he will return it correctly and in good specie. We also see that another debt in another chirograph is included in this stipulation. Moreover, a pledge for the loans follows. It is clearly written in his own hand; the spelling errors would not have been made by a professional scribe. Eunus signed on the exterior and probably sealed it too.

Personal security was given in this form (*satisfactio*, *cautio*); likewise acknowledgement of debts (which could be recorded on wax tablets—*tabulae*—or papyrus, and in the form of a *chirograph*). Generic sales, such as of a quantity of grain, could not be done by *emptio venditio* (lacking the ‘Barkauf’ character), but had to be done by two stipulations. Further, we see with Varro that stipulation was also used with (specific) sales as a reinforcing of the contract (*R.R.* 2.2.5). The guarantee against eviction with sales was done as stipulation for the double price. As said before, after AD 212 with the universal grant of Roman citizenship the so-called stipulation clause emerges in all kinds of documents. It consists of the phrase, put at the end of the document, that the author, having been asked, has confirmed (*interrogatus spontendit*, ἐπηρωτηθεὶς ὡμολόγησα).⁹⁰ That would make the preceding text into a stipulation and therefore enforceable. Since often the preceding is certainly not a stipulation, it is likely that the new citizens wanted to play safe with a law they were not yet used to. The stipulation was *ius gentium*, and as such there would have been no reason for peregrines not to use the clause already prior to AD 212 in this way. But in cases where the citizenship of the contracting parties cannot be identified, the question remains open.

4.8.2. *Contracts by writing: litterarum obligatio*

The contracts in writing were mainly for Romans, but in some cases applicable to peregrines.⁹¹ Gaius deals in 3.128–34 with the literal obligations, which are engaged through the account book of a *pater familias*. Probably such an account book was originally used for husbandry, but the context in which Gaius deals with the subject is rather commercial, and he distinguishes three kinds of debt. According to Thilo, these contracts were modelled after the stipulation.⁹² First, the *nomen transscripticium* is the entry into the ledger of a debt of a person—for example, on account of a sale to him. It is registered as having been paid to him, and, although the buyer was already obliged on account of the sale, he was now obliged on account of the entry in the ledger

and spelt, to the amount of 4,000 *modii*, which are deposited in the same storehouse; I declare: which all are at my risk.’

⁹⁰ See Simon (1964) for the stipulation clause.

⁹¹ Kaser (1971: §129). ⁹² Thilo (1980: 292–5).

(which, of course, will have happened with his consent). This facilitated the proof. It could be done in the absence of the parties (for example, by letter). Second, a debt registered in the ledger could be transferred to another person if the debtor asked the owner of the ledger to do so (delegated him). We must assume that again this happened with the approval of both the new debtor and the owner of the ledger, and that the first debt was struck out. It was a simple way of exchanging one debtor for another in the absence of parties.⁹³ As such they made the financial settlement of business possible without the need for presence, required for stipulation and novation, and so business at a distance became possible. Because of this Thilo suggests that this was the reason for designing this contract. But it also allowed somebody—for example, a banker—to handle transactions between the accounts of several persons entered in his ledger. Then the *nomen arcarium* (cash entry). This was merely the registration in the ledger of an existing debt on account of a real contract—namely, a money loan. It served as evidence. Since the contract of loan for use was available to non-Romans, this (third) kind of debt was too. The first kind, however, was questioned. One jurist thought it was available; other jurists thought only when a peregrine was already obliged for a money loan. This means that a peregrine could not enter the ledger for a debt out of, for example, a sale, but could for a money loan, and that this debt could be transferred to a new creditor. Gaius further mentions obligations by writing peculiar to the *ius gentium*: *chirographs* and *syngraphs*. Their origin lay in the Greek–Hellenistic world and there they were widely used. If a *chirograph* contained a declaration of debt, it may conveniently be called an IOU. Their effect for non-Romans was that the debtor was bound (for Romans, see below).

The combination of *nomina transscripticia* and *arcaria* provided the means to maintain on a modest scale the functions of a giro system,⁹⁴ albeit a modest one, since it worked only between persons who had an account with the system. It gave a person who functioned as a depositary for money of other people the facility to set out loans for them, registering the debtors in his ledger, while acknowledging his debt to the depositors in their private ledgers, or through a stipulation, of which a record was made. In short: it allowed for a simple banking system. Could such a transfer system also have existed *between* bankers? Andreau allows for it on the basis of cooperation and trust and that must have been possible,⁹⁵ but is a more formalized system excluded? If such a person, whom we shall call for convenience a banker, trusted bankers elsewhere (in the same town, other cities), he could set up *nomina* in their names

⁹³ If A owed money to the bank, A could ask the bank to account it to C. In other words, one debtor (A) was replaced by another (C). It means that A lent money to C: what he should have paid to the bank went, fictitiously, over the bank to C. Andreau (1987: 564) does not exclude transfers between clients in one bank, but does not examine Gai. 3.128–34.

⁹⁴ Cf. Rathbone (1991: 318–30) for Heroninos' bookkeeping.

⁹⁵ Andreau (1987: 564–5).

and in this way transfer credit claims between them, thereby expanding the giro system. If they had a partnership (*societas*), the settling of accounts might be easier. It is usually assumed that this kind of contract was in desuetude by the Principate, but that is hard to prove: it was abolished by Justinian, so all references in the *Digest* and Code are extinguished, and Gaius may have restricted himself.⁹⁶

About the continued and extensive use of the *chirographs* (and *syngraphs*) among Romans and non-Romans, on the other hand, there is no doubt. A *chirograph* is, essentially, any document in which the writer makes a statement by his own hand or by a scribe, usually in the form of a letter. The *chirographs* we are dealing with in this context are usually documents in which the writer acknowledges that he owes a sum of money, for different reasons, such as on account of a sale, a loan, or a deposit. They follow a rather standardized format, in the form of a letter, but need not be written by the declaring person.⁹⁷ The following *Digest* text, D. 22.1.41.2, offers a generalized example:

Gaius Seius took a loan from Aulus Agerius with the following writing [*chirography*]: ‘I, so-and-so, have acknowledged receipt of and received from him, so-and-so, by way of loan ten, which I shall repay on the first of such-and-such month with the agreed interest.’ What interest, if any, can be claimed on such a document? Modestinus replied that if the agreed rate of interest could not be proved, no interest could be claimed.⁹⁸

This is the basic form of a *chirograph* with an acknowledgement of debt. It is, because of the form, an IOU. It shows that the debt is constituted as a *mutuum*, because it says the money was paid (*numeratio*). Note that Modestinus did not reject the validity of the interest agreement on the ground that such agreement could not be made at the same time with a *mutuum*,⁹⁹ but because its rate was not set. The remarkable thing is that the debt acknowledgements among the documents from Pompeii and Murecine mention repayment, but do not mention interest.¹⁰⁰ In general they conform to the above text, but may also have the assurance to repay, framed as and reinforced

⁹⁶ That Gaius does not discuss, e.g. the dowry, does not mean that it did not exist.

⁹⁷ Jakab (2011).

⁹⁸ D. 22.1.41.2 ‘Modestinus, Replies, book 3. (D. 22.1.41.2 Mod. 3 resp. Ab Aulo Agerio Gaius Seius mutuam quandam quantitatem accepit hoc chirographo: “ille scripsi me accepisse et accepi ab illo mutuos et numeratos decem, quos ei reddam Kalendis illis proximis cum suis usuris placitis inter nos”: quaero, an ex eo instrumento usurae peti possint et quae. Modestinus respondit, si non appareat de quibus usuris conventio facta sit, peti eas non posse.). The translations of *Digest* texts are based on *The Digest of Justinian* (1985).

⁹⁹ It would have to be considered a separate *pactum*, but in that case its enforceability was questionable. See Jakab (2011: 290) on this text.

¹⁰⁰ See Gröschler (1997: 149–93, §10).

by a stipulation.¹⁰¹ The prevailing view as expressed by Nelson and Manthe is that where between peregrines *chirographs* were binding agreements (Gaius places them among the *contractus litteris*), between Romans *chirographs* had only evidentiary value.¹⁰² But Jakab has recently pointed out that in practice we do not see any such restriction and that a standard Roman *chirograph* evidently grounded an obligation.¹⁰³ Indeed we find in the *Digest* several texts that argue for this. Its value could be claimed if it was destroyed or stolen, even if it could be proved otherwise that the debt was due (unless a double document had been drawn up); and also as proof of receipt it kept its value.¹⁰⁴ It is said that they do not represent their value as corporeal object, but as regards the amount of the sum in it.¹⁰⁵ They could be bequeathed, including the actions attached to them,¹⁰⁶ or sold, whereby the debt was considered to be sold too, which implies that such debts were transferable.¹⁰⁷

¹⁰¹ e.g. *TPSulp* 50: *Chirographum Marci Antoni HS ∞ ∞/Marci filii Collina Maximi/Decimo Valerio Asiatico Aulo Gabinio Secundo consulibus/V idus Novembres./Marcus Antonius Marci filius Maximus scripsi me acce/pisse et debere Gaio Sulpicio Fausto HS ∞ ∞ nummum,/quae ab eo mutua et numerata accepi/eaque HS ∞ ∞ nummum, quae supra scripta sunt, proba recte dari/stipulatus est Gaius Sulpicius Faustus spopondi/ego Marcus Antonius Maximus.../quam summam... pridie/idus... 'Chirograph of Marcus Antonius Maximus, son of Marcus, of the tribe Collina, in the consulate of D. Valerius Asiaticus and A. Gabinius Secundus [= AD 35], 9 November. I, M. Antonius Maximus, son of Marcus, have written that I have accepted and owe to G. Sulpicius Faustus 2,000 sesterces in specie, which I have accepted from him as borrowed and counted, and G. Sulpicius Faustus has formally asked me to give these 2,000 sesterces in specie, as aforementioned, in good coins and correctly, I, M. Antonius Maximus, have promised... this sum... on the 12th...'*

¹⁰² Nelson and Manthe (1999: 215–20, 518, esp. 521). Liebs (2009: 466) assumes that the *chirograph* was constitutive also between a Roman creditor and a peregrine hellenistic debtor.

¹⁰³ See Jakab (2011: 292).

¹⁰⁴ *D.* 47.2.27 *Ulp.* 41 *ad Sab.* Also *D.* 9.2.40 *Paul.* 3 *ad ed.* In the case of a debt, it was the practice to return the *chirograph* to the debtor when he had paid his debt. If the creditor bothered him again about the now paid debt, the possession of the *chirograph* proved that he had paid.

¹⁰⁵ *D.* 30.44.5, see n. 107.

¹⁰⁶ *D.* 32.59 *Julian, Digest*, book 34: 'A testator who bequeaths a note-of-hand [*chirograph*] has in mind not so much the document as the rights of action which the document proves. It is well known that we use the term "bond" [*chirograph*] for the actions themselves, since when a note-of-hand is sold we understand that the debt has been sold. And indeed if anyone bequeaths a claim for a debt, this is understood to be a legacy of what is to be had from the actions' (*D.* 32.59. *Iul.* 34 *dig.* *Qui chirographum legat, non tantum de tabulis cogitat, sed etiam de actionibus, quarum probatio tabulis continetur: appellatione enim chirographi uti nos pro ipsis actionibus palam est, cum venditis chirographis intellegimus nomen venisse. Quin etiam si nomen quis legaverit, id quod in actionibus est legatum intellegitur*).

¹⁰⁷ *D.* 30.44.5 *Ulpian, Sabinus*, book 22: 'He who bequeaths a note-of-hand [*chirograph*] bequeaths the claim, not just the document itself, as is proved by sale. For when they sell notes-of-hand they are held to have sold the claim for a debt' (*D.* 30.44.5 *Ulp.* 22 *ad Sab. Eum, qui chirographum legat, debitum legare, non solum tabulas argumento est venditio: nam cum chirographa veneunt, nomen venisse videtur*). *D.* 30, 44,6 *Ulp.* 22 *ad Sab.* *Sed et si nomen legetur, benigne id quod debetur accipiendum est, ut actiones adversus debitorem cedantur.*—'For when they sell *chirographs* they are held to have sold the claim for debt. But if the claim is bequeathed, the debt must be construed benevolently so that actions may be assigned against the debtor.' It follows from this that in case of sale the actions automatically followed the acquiring person.

D. 30.44.5¹⁰⁸ implies something else: if the *chirograph* was the only evidence of the debt, it was its value worth, which means that it was basically full proof of the debt. If in a *chirograph* a debt from a money loan was acknowledged but the money had not been paid out, the debtor could within one year (or five years after Diocletian) after its date raise the plea of not having received the money (*exceptio non numeratae pecuniae*), a term that Justinian set at two years (*Just. Inst.* 3.21). Once the term had passed, the *chirograph* was irrefutable, even if it did not conform to the truth. But precisely this demonstrates that *chirographs* had become already in the second century AD obligations by virtue of being written—that is, the mere document established the obligation. This was also the case with *chirographs* with a debt from a different legal relation.¹⁰⁹ Conversely, only strong evidence of a remaining debt was allowed against a struck-through *chirograph*. Formally only the original creditor could have claimed, but with a *chirograph* an *actio utilis* was given to the acquirer and he could cash it (*CJ* 4.10.2). This action was therefore substantially a right of the acquirer, independent from the testator or seller. Such an independent right is not exceptional: Antoninus Pius granted it to the assignee of a claim in certain circumstances, based on the grant of an *actio utilis* to the purchaser of an inheritance.¹¹⁰ Perhaps the name of the new creditor was used to transfer it. The technique of doing so was in any case known in AD 158–9 in Egypt, which turned a *chirograph* receipt of grain into a bill of lading;¹¹¹ but with a legacy this could not be the case.¹¹² If this technique was known in Egypt, it will have been known elsewhere and it fits the texts in the *Digest* on the transferability of *chirographs*. Such *chirographs* must have been avidly used in

¹⁰⁸ See n. 107.

¹⁰⁹ Originally somebody who had acknowledged by stipulation to a debt could raise the *exceptio doli* if the money had not been given to him. The stipulation was strict law and undeniable, only the *exceptio doli*—namely, that it was bad faith of the creditor to claim the debt—could force the creditor to prove that he was right. In such a case he would have to prove that indeed by payment the debt had been created. Where an *exceptio doli* was impossible, e.g. against a patron, a factual exception could be raised—namely, the *exceptio non numeratae pecuniae* (D. 44.4.4.16; 17.1.29 pr). The *chirograph* had according to Gaius 1.134 constitutive value between peregrines, not between Romans, but the application of this rule for stipulations (which, being *ius gentium*, applied also to peregrines) to *chirographs* (*CJ* 4.30.3 [a. 215]) puts *chirographs* on the same line as stipulations, hence considers these strict law for Romans too. *CJ* 4.30.5 mentions that *chirographs* not referring to a money loan must be judged on the original cause of debt, evidently only if this was expressed in the deed. See on the question Kaser (1971: 541–2; 1975: 379–80).

¹¹⁰ See Kaser (1971: 654).

¹¹¹ *P.Oxy.* XXXI 5291: Sarapion receives an acknowledgement of a deposit of 16 *artabas* in a granary, and on this basis he orders the transfer of these *artabas* to Herakleides in respect of an advance loan by the latter to him. But then, written on the same *chirograph*, Herakleides orders the transfer of the 16 *artabas* to another person by the name of Zoilos, who will have received the *chirograph*. Herakleides received and kept the *chirograph* as proof of the order to transfer. Before he had used it for this, he used it to order a transfer to Zoilos (he may have been indebted to him). Zoilos now could effect the transfer, this time to himself.

¹¹² See n. 107.

commerce and financial business, since Anastasius (491–518) ruled that whoever had bought a debt could claim no more from the debtor than what he had paid for it. Thus the buyer could not profit from any discount by claiming the nominal value.¹¹³ This was definitively more than a *delegatio debitoris*, the order of a creditor to a debtor to pay to a third party, or a *procuratio in rem suam*, or a novation, or an assignment (*cessio*). In the first three cases the (first) creditor retains his rights, with a novation the debtor has to collaborate, and in an assignment the magistrate's collaboration is required. A legacy does not imply a *delegatio*, nor can it be interpreted as an order to the debtor to pay to the legatee. Likewise the legatee cannot act as if having a *procuratio* since the first creditor had fallen out; nor could he be considered his successor since he was not heir. With a chirograph for a money debt, the first creditor loses his rights, the new creditor may rely on his independent rights, and the debtor has to accept the transfer. That is a decisive difference. As regards *chirographs* of (money) debts, they function as a *contractus litteris*. Hence a debt acknowledged in a *chirograph* was a negotiable instrument, and the acquirer could exercise the action needed to claim it.¹¹⁴

Such a *chirograph* was not a cheque: a cheque is drawn by the drawer on his own account with a bank, ordering the bank to pay to the person mentioned in the cheque. Here it is an acknowledgement of a debt to a certain person, the creditor, and the creditor can transfer the cheque to anyone, while the beneficiary of the transfer can claim the debt. In the end the result is similar. A difference is that with a cheque the account of the drawer must be sufficient, whereas with a *chirograph* the issuing debtor should be solvent. In both cases trust is required.

The application of the *chirographs* in the context of commerce must have been much wider than is assumed,¹¹⁵ as this examination shows. It would explain the decline and disappearance of the old contracts by writing.

Textbooks of Roman law usually state that assignment was impossible in Roman law except by way of novation, a *delegatio debitoris*, a cession, or a mandate in combination with a *procuratio in rem suam*; or when parties made use of sons *in potestate* or slaves. That is certainly true when it concerns the transfer of all kinds of actions. But where it concerns money, assignment of a claim must have been very easy between Romans among themselves and between them and peregrines, and among peregrines if the claim was encapsulated in a *chirograph*. A *chirograph* functioned as a negotiable instrument, and, as long as the debtor was trusted, it could also function as fiduciary money next to

¹¹³ CJ 4.35.22 (AD 506). The text mentions cession—namely, by mandate—of claims bought, but this must have covered *chirographs* as well, which could be sold: D. 30.44.5 (see n. 107).

¹¹⁴ See Sirks (2016) for a detailed exposition of this argument.

¹¹⁵ Andreau (1987: 561–3 on the cheque, 567 with a restricted interpretation of the role of the *chirograph*); likewise Andreau (1999: 43–4). However, he leaves out the *Digest* texts discussed above.

coinage. Harris has already challenged the importance of coinage and emphasized the role of credit.¹¹⁶ *Chirographs* would have facilitated this.¹¹⁷ We know there were demand deposits and that these were used (see §§5.3 and 5.4). Theoretically this may have led to money creation by fractional-reserve banking—namely, by issuing *chirographs* that could be used as if a bank note—but we do not know anything about this (Harris is more positive on this¹¹⁸). In any case, the character of negotiable instrument a *chirograph* had would have made it possible to issue these by way of credit, and they could have been used by their holders as payment to others. Insolvencies may indicate cases in which a banker could not unwind his affairs in time and collect his claims (see below). In any case, one should not exclude the possibility that by way of *chirographs* with a monetary debt fiduciary money was created.

4.8.3. *Real contracts*

When Gaius mentions the category of real contracts, he merely specifies the loan for consumption, *mutuum*, although the category also comprises deposit (*depositum*), loan for use (*commodatum*), and pledge (*pignus*).¹¹⁹ Whatever his reasons,¹²⁰ from the commercial point of view all three were important, albeit in different situations. *Commodatum* was commercially not important.

Mutuum, a strict contract and already at an early stage *ius gentium*, was any loan but in practice the loan for use of money (*pecunia mutua/credita*). We shall deal with it under §5.4, together with *depositum*. Interest was normal, even between acquaintances and friends, but had to be agreed upon in a separate pact. These are not always found.¹²¹ There was a legal limit of a half per cent per month.¹²²

The bottomry loan (*pecunia traiectica, foenus nauticum*) was a loan for the purchase of goods, to be transported on a ship. It attracted a higher rate of interest than the legal one, or (in Greece) than the usual rate, since the risk of loss of cargo by shipwrecking was calculated in the higher rate. The different rates known from Demosthenes' speeches are therefore an interesting estimate of the risks of the different routes. If the ship went down and the cargo was

¹¹⁶ Harris (2006).

¹¹⁷ Harris (2006: 8) mentions the *chirographs* and sees the transfer of *nomina* as the main factor behind the credit economy, but does not make the link between these.

¹¹⁸ Harris (2006: 15–16). ¹¹⁹ Kaser (1971: §§ 124–6).

¹²⁰ It is likely that he mentioned only this contract because he wanted to make the remark, rendered in Gai 3.92, and then went on with other kinds of contracts.

¹²¹ Thus with the Murecine documents, see at n. 89. See Gröschler (1997: 149–94; 2006). If these had been deposits, interest might have been implied, cf. §5.4. For the documents, see Camodeca (1999).

¹²² Cerami, Di Porto, and Petrucci (2004: 135–48).

lost, the borrower did not have to repay the loan. This tallies with the higher rate, of which the extra can be considered an insurance premium for the lender.¹²³

Depositum was the deposit of any goods, but its commercial importance was the deposit of money, be it for safekeeping, be it for payments and other money transactions, be it as loan for use (*depositum irregulare*), and for that reason also dealt with under §5.4. Deposits of commodities were possible (for example, grain or wine), but these will more commonly have been formulated as cases of hire of space to stock one's goods, as, for example, attested in *TPSulp.* 45 and 46.

Pledge as real contract consisted originally of the handing-over of the pledged object, on the basis of the consensual contract of pledge, but, since the real contract could be engaged without this transfer, its place among the real contracts has become less realistic. It is therefore treated separately, together with other forms of real security, under §4.9.

4.8.4. *Recepta, innominate contracts, pacta*

Innominate contracts like exchange will not have been commercially important, but *recepta* on the other hand will have been.¹²⁴ The *recepta*—here, guarantees—were agreements recognized in praetorian law and enforced by actions. Two concern agreements of commercial interest: the *receptum nautarum cauponum stabulariorum* (guarantee of sailors, innkeepers, and liverymen)¹²⁵ and the *receptum argentarii* (banker's guarantee). The first guaranteed that the goods delivered to them by their customers would be safe (*res salvae fore*). It implied a risk liability for loss and could be added to a transport contract (*locatio conductio*).¹²⁶ In the case of the shippers, an exception was allowed by Labeo for the case of loss that was due to piracy or storms (the *exceptio Labeoniana*, *D.* 4.9.3.2). Such guarantees will have supplemented the normal contracts of hire and lease (*locatio conductio*). The *receptum argentarii*¹²⁷ was a guarantee by a banker that a debt would be paid; it could be a debt by the person the guarantee was given to, or by another. The debt did not even have to exist. Here, too, a contract like deposit or *mutuum* will have been the basis to which the guarantee was added.

¹²³ Purpura (1984; 1987); Cerami, Di Porto, and Petrucci (2004: 288–95). See §5.5 with *D.* 45.1.122.1, where a financial construction restricts the risks of the creditor.

¹²⁴ Kaser (1971: §§135, 136); Cerami, Di Porto, and Petrucci (2004: 37).

¹²⁵ Kaser (1971: 585–6); Cerami, Di Porto, and Petrucci (2004: 269–84); recently Carvajal (2008: 583–602).

¹²⁶ Cerami, Di Porto, and Petrucci (2004: 281–4).

¹²⁷ Bürge (1987: 527–36); Cerami, Di Porto, and Petrucci (2004: 129–35).

4.9. Security

Commerce often requires payment, but is also often done on credit.¹²⁸ *Credere* implies the trust that the sum credited is paid (*D. 12.1.1.1: adsentiamus alienam fidem secuti mox recepturi*) and, in the case of contracts implying this constellation, such as *mutuum* and *depositum*, where one trusted that the money or thing given would be returned, the praetor would come to the assistance with a *condictio certi* (*D. 12.1*). This edict must have been important for commerce. Vice versa, the grouping of these contracts under this edict demonstrates that the Romans recognized very well the importance of credit. But it is sensible, in order to have an alternative in case of a disappointment, to demand security for the credit. The Romans knew several kinds of security: real security as *fiducia*, *pignus*, *hypotheca* (taken over from the Greeks), and personal security through *sponsio*, *fideipromissio*, and *fideiussio*, all forms of a formal promise. *Fiducia* was an old form: the debtor transferred the ownership of his security to his creditor. It had the advantage that he could keep possession, and as such we see it used by Poppaea Note in a Pompeian document,¹²⁹ but the disadvantage was that it became the property of the creditor. If the latter went broke, the debtor lost his pledge.

Another case is *TPSulp.* 85–87, of AD 51. It concerns a loan of Gaius Sulpicius Cinnamus to Marcus Egnatius Suavis, who had given in *fiducia* six slaves as security. This means that he had transferred ownership of them.¹³⁰ Suavis could not redeem the loan, and Cinnamus advertised the sale of the slaves on 14 October, AD 51. But Suavis died before the sale and had no heirs, as appeared on 23 October. On 31 October Cinnamus' agent handed over the slaves to the magistrate to have them auctioned the next day. Jones supposes that the auction of Cinnamus' estate was to take place and that Cinnamus had thrown in the slaves as well, to have his share as co-creditor.¹³¹ But there is no evidence that the sale concerned the estate of Suavis, and, even so, why would Cinnamus have wanted to bring in the slaves? Why would he have wanted to surrender his security, which he could sell to pay off his claim? Jones does not give a reason. It was precisely to stay out of such co-creditorship that real security was applied and *fiducia* made Cinnamus—still better—owner. The reason for the delay will have been that, like the case of Poppaea Note,¹³² previously mentioned by Jones, the slaves had remained in Suavis' possession: that was the great advantage of *fiducia*. Normally it would have been easy to claim them from Suavis, but, since he was now dead, they had to be claimed from the estate, where the curator will first have demanded proof of ownership. After that Cinnamus

¹²⁸ Kaser (1971: §§108–11 with §128).

¹²⁹ The *mancipatio Pompeiana* by Poppaea Note, of AD 61, see *CIL* IV.3340.154–155 and *FIRA* III.91.

¹³⁰ Buckland and Stein (1963: 431–3); Kaser (1971: 460–3).

¹³¹ Jones (2006: 86–7). ¹³² *CIL* IV.3340.154–5.

sold his security to recover his claim, separately from other creditors. This shows the importance of considering the legal framework carefully.¹³³

Pignus was the pledge whereby the debtor transferred merely actual possession and remained owner. The creditor pledgee had the right to sell it but had to turn over any surplus. Later on it became possible to grant a pledge while retaining possession, and by that *pignus* became equal to *hypotheca*, a form of non-possessory pledge evidently taken over from the Greeks and which could comprise both personal and real estate, generally or specifically (the debtor remained owner). *Fiducia* and *sponsio* and *fideipromissio* were reserved for Romans, the other forms not. There was no system of publicity—that is, that a third party could inspect whether something was already burdened by a security. But to give further security without warning the creditor that it was already burdened amounted to a crime, *stellionatus*.¹³⁴ This and the existence of legal general hypothecs, secondary to the privileged creditors such as the fisc, must occasionally have caused complicated situations because of the lack of available information such as public registers. There are indeed references to it, but not many; but we see that it indeed did cause great problems in the Middle Ages and later on. Many medieval towns prescribed registration of charges on moveables, and provided thus a system of public information. Similar problems must also have occurred in the Roman Empire, but such a registration was not known.

Why do we not read of any complaints about this in the legal and other texts of antiquity? There is enough about priority, and it is certain that such complications as known from later times occurred, but it was apparently not viewed as a great disadvantage. That there is less about this may have been due to the wide use of personal security in the form of a stipulation. Everywhere we see a personal surety prescribed in public matters, and applied in private matters: the *satisdatio* or *cautio* was very often used. Creditors may have taken recourse to these in order to put the debtor under pressure and have him use his social relations to have a better chance of redemption. If a creditor distrusted the real security, he could take recourse to the personal security first; or vice versa. Social pressure will have done the rest. Of course a creditor had to be careful. If a small merchant gave a magnate as personal surety, the chance of successfully suing the magnate will not have been great.

4.10. Delicts

Two delicts were apparently created, or endowed with an action, because of the demands in commerce, but this time to protect the customers. The first is the *actio furti adversos nautas caupones stabularios*, the action on theft against

¹³³ See Sirks (2002b).

¹³⁴ Kaser (1971: 610, n. 7).

shipmasters, innkeepers, and liverymen for theft, committed on their premises. The owner of the stolen asset had the action, but, if another had concluded a *receptum* with the shipmaster, and so on, he would have the action. One could raise the normal action on theft against the actual thief, but also against the person who had, in modern terms, the benefits of the enterprise. Such an action would provide more security for customers against shady practices: a kind of consumer protection.¹³⁵ Similarly an *actio damni adversos nautas caupones stabularios* existed, for damages done by executive personnel on ships, in inns, and in liveries.¹³⁶ There might be concurrence between these two actions and the conventional pact of the *receptum nautarum*, since the latter guaranteed the safe and intact acceptance and subsequent delivery of a good. By the *receptum* the accepting party took upon himself a general risk liability; by these actions he had a liability for two special kinds of risks; the plaintiff had to choose. But, if the contracting party sued him on the basis of the underlying contract, his liability would be reduced to lack of care (with the *locatio conductio*) or even intent (with *depositum*).¹³⁷ Another action was the *actio furti* for *furtum* committed by the personnel (*familia*) of *publicani*. It seems that it was not uncommon for the tax farmers that in collecting the taxes their personnel were not shy of appropriating goods for themselves.¹³⁸

4.11. *Actiones adiecticiae qualitatis*

Enterprises are done by contracts and investments.¹³⁹ But only *sui iuris* Romans—that is, Roman citizens not under the power of another Roman—could own property and enter into contracts. They could and would acquire property through those under their power (slaves, children, and wives *in manu*—but *manus* marriage was obsolete by the middle of the second century AD), but they could not be obliged against their will. It must already in the agrarian society have been a rather impracticable situation: what about a slave or son who wants to buy some pigs at the market? We know little about this for Greek law, but it seems that in the fourth century BC, although he could formally neither contract nor own, a slave was capable of working ‘outside the house’ rather independently, of course with permission of his owner. But all that he earned was his master’s, as were his debts.¹⁴⁰ As regards the Romans, we see in situations in which the consent of the *pater familias* is evident, implicitly or expressly, the possibility that the contract partner of the person *alieni iuris* can

¹³⁵ Cerami, Di Porto, and Petrucci (2004: 295–7).

¹³⁶ Cerami, Di Porto, and Petrucci (2004: 297–8).

¹³⁷ See on this Cerami, Di Porto, and Petrucci (2004: 298–300).

¹³⁸ Cerami, Di Porto, and Petrucci (2004: 37, 38–9).

¹³⁹ Kaser (1971: 605–9). ¹⁴⁰ Todd (1993: 186–8).

sue the *pater familias*. This consent may derive from an express order to trade (a *iussum*), which can define the extent and contents of that trade; from the fact that the person *alieni iuris* has received a capital sum to work with it independently (a *peculium*); and, finally, he can be sued in so far as he has been enriched (*in rem verso*). These actions opened the way against the *pater familias*, but at the same time they limited his liability. With the development of the economy—that is, the increase of commerce and wealth (not necessarily the result of commerce)—the *peculium* gained much importance as a means of investment. A capable slave could set up or invest in a business (*negotiatio*) with a *peculium* and, if he had *libera administratio*, he would in practice be free to act.¹⁴¹ The *actio de peculio* and the other *actiones adiecticiae qualitatis* could be used in that case to limit liability in investments, be it quantitatively or qualitatively: quantitatively, in the case of a *peculium*, where a slave was free to engage in any business with his *peculium*,¹⁴² to the amount of the *peculium*; and in the case of enrichment, to the amount the master had been enriched; qualitatively, in the case of a *iussum*, where it narrowed down the area of activity for which the principal was liable—namely, restricted to the given order and authorization, but not the extent of liability; of course this might be combined with a limit on the *peculium*.

The participation in commercial enterprises through a slave had a disadvantage: the *pater familias* might be involved in litigation. But, if an investment or trade activity was done through a freedman, the patron would remain completely out of sight.¹⁴³ He might lend the freedman the capital and reclaim it completely, with normal interest, or grant it as *peculium* upon manumission and then expect at the moment of succession part of it back on account of the portion to which a manumissor was entitled (usually half with male, fully with female manumittedes). If he wanted complete return, he had to create a Junian Latin freedman. In these cases he would also receive capital gains.¹⁴⁴

The *actiones adiecticiae qualitatis* were not actions on their own, though called as if they were. They were additions in the formula to substantive actions like the *actio venditi*, restricting or enabling the liability of the principal; thus

¹⁴¹ Fleckner (2010: 217–37, 292, 335, 420–41, 495).

¹⁴² See Cerami, Di Porto, and Petrucci (2004: 36, 40–9) on *negotiationes* in connection with particularly *peculia*; further Fleckner (2010: 217–37). On the entrepreneurial role of the *peculium*, see Pesareci (2008, reviewed by Cerami 2010). An interesting contribution to this debate and distinguishing various forms of business entities is Abatino, Dari-Mattiacci, and Perotti (2011), also dealing with other *actiones adiecticiae qualitatis*, with further literature. I do not agree with them that the Roman accounting system was primitive on account of the lack of a numerical zero and high costs of writing materials. The abacus was used to calculate, and numbers were written on wax tablets and used to retain the outcome of calculations.

¹⁴³ See Cerami, Di Porto, and Petrucci (2004: 79–87) with various constructions of participation of the master through slaves or freedmen.

¹⁴⁴ Cerami, Di Porto, and Petrucci (2004: 87–96), not mentioning the exact amounts and the variations, or the investments through Junian Latins: see for that Sirks (1980; 1981; 1983; 2010).

they were variants that made it possible that a person, not party to a contract, could sue or be sued. Thus they always required a legal basis, which in these cases will mostly have been a sale (*emptio venditio*), hire or lease (*locatio conductio*),¹⁴⁵ a stipulation, or a money loan (*mutuum*). They were probably originally and primarily applied in the ambiance of the small farm. But they must have led to two far more commercial applications: the *actio institutoria* and the *actio exercitoria*. Here somebody is liable for acts done and business debts incurred by a person not in his power. An *institor* was an appointee (*praepositus*), somebody set up in a shop or business enterprise.¹⁴⁶ The praetor granted his contract partner an action against his principal (*D. 14.3.1*).¹⁴⁷ They will mostly have worked in the context of agricultural exploitation, such as shops selling earthenware, but we find them also in other kinds of commerce, such as a business enterprise where one of the partners functioned as *institor* and in this way could act for all.¹⁴⁸ In the Later Empire the action was analogously applied to managers of estates, to facilitate the exploitation of these.¹⁴⁹

Another branch of commerce was shipping, the transport of goods and persons. Enterprises here could be organized in various ways, such as by a partnership (*societas*),¹⁵⁰ but in the end there was always one or more persons who ran the enterprise and was considered the shipowner or *exercitor*.¹⁵¹ He could be a free man or somebody else's slave, with or without a *peculium*,¹⁵² who acted as manager of a ship. He was to be distinguished from the captain (*magister navis*), whose duty was to sail the ship. The *actio exercitoria* was granted to third parties against the *exercitor*. It had great commercial value.¹⁵³ Ships might be repaired after a storm far away from their base, and the suppliers had to be certain that they could claim their costs, or the loan supplied to this end, from the financially responsible person.¹⁵⁴ And overseas trade depended on ships.

¹⁴⁵ Cerami, Di Porto, and Petrucci (2004: 257–68) for shipping, with the *lex Rhodia*. But can this be considered an addition to the contract? Rather not, since it does not change the conditions of the contract, nor does it require that somebody has a contract: profiting from the rescue of the ship sufficed: Kaser (1971: 572).

¹⁴⁶ See, for a comprehensive treatment of the *institor* as business-manager, Aubert (1994); further Di Porto (1989) and Serrao (1989).

¹⁴⁷ Kaser (1971: 608); Cerami, Di Porto, and Petrucci (2004: 316–23).

¹⁴⁸ Cerami, Di Porto, and Petrucci (2004: 324–44).

¹⁴⁹ Kaser (1971: 608); cf. *CTh* 2.30.2 with 2.31 and 2.32.1.

¹⁵⁰ Cerami, Di Porto, and Petrucci (2004: 247–53).

¹⁵¹ Cerami, Di Porto, and Petrucci (2004: 231–54) on the various organizational forms.

¹⁵² Cerami, Di Porto, and Petrucci (2004: 239–47).

¹⁵³ Cerami, Di Porto, and Petrucci (2004: 255–7) on this action. Kaser (1971: 608).

¹⁵⁴ Cerami, Di Porto, and Petrucci (2004: 284–8) for the loan, supplied in order to have the ship repaired. The *laudatio edicti* says it very clearly: *D. 14.1.1 pr. Ulp. 28 ad ed. Utilitatem huius edicti patere nemo est qui ignoret. Nam cum interdum ignari, cuius sint condicionis vel quales, cum magistris propter navigandi necessitatem contrahamus, aequum fuit eum, qui magistrum navi imposuit, teneri, ut tenetur, qui institorem tabernae vel negotio praeposuit, cum sit maior necessitas contrahendi cum magistro quam institore. Quippe res patitur, ut de condicione quis*

From a rescript of Diocletian and Maximian, of 293, to a certain Antigone, it appears that women could be *exercitores* too and that the appointment was the decisive criterion for applying the *actio exercitoria*: ‘And if a man has been appointed shipmaster by a woman, she is liable on his contracts in the *actio exercitoria*, in pattern of the (*actio*) *institoria*.’¹⁵⁵ So what was the question, to which this rescript was the answer?¹⁵⁶ A scholion to the Basilica version of this text suggests a probable constellation. A woman was forbidden by the *Senatusconsultum Velleianum* to intercede (like standing security) for somebody else’s obligations. If deceived into doing this, she could claim restitution.¹⁵⁷ Antigone, who was apparently being tackled, may have given a brief to the captain, vague enough for her to contend that she interceded for the engagements of the captain and to invoke now the exception of the *senatusconsultum*; or she may have said that it was the captain’s business, not hers. The scholion says that, if she appoints somebody for her own business, she is held with the *actio institoria* because it is her business; in case of somebody else’s business, she would have interceded and not be liable. In this case, if it is proven that she had appointed the captain, it would have concerned her business, there could be no question of intercession, and she would be liable (of course only for those dealings appropriate to the appointment of the captain, and, as the scholiast implies, with the *exercitoria*).

We also see pyramids of dependencies in shipping: a *filius familias* (thus: in the *potestas* of his *pater familias*) could have a slave with a *peculium* who was with his consent *exercitor*, or whose *peculium* slave (a *vicarius*) was *exercitor*. The *pater familias* would be liable for the debts incurred by the *exercitor* to the amount of the *peculium*; the *filius*, however, for the whole (on account of his consent). If the *pater* had consented, he too would be liable for the full debt.¹⁵⁸ The consent was apparently interpreted as an order (*iussum*). Creditors could therefore wait till the *filius* was his own man and then sue him. That the restriction of the *peculium* was reduced here should not surprise in view of the importance and the sums involved: creditors should not have the surprise of a limited liability here.

institoris dispiciat et sic contrahat: in navis magistro non ita, nam interdum locus tempus non patitur plenius deliberandi consilium.

¹⁵⁵ CJ 4.25.4: *Impp. Diocletianus et Maximianus AA. Et CC. Antigoneae. Et si a muliere magister navis praepositus fuerit, ex contractibus eius ea exercitoria actione ad similitudinem institoriae tenetur. D. xvi k. Nov. Sirmi AA. Cons [= 293].* Krüger added *navis*, referring to the Basilica, but the modern edition (Scheltema) has no such mention.

¹⁵⁶ Connolly (2010: 106–7). Connolly thinks Antigone’s ship had damaged another ship and she was held liable now. Antigone now remonstrated that the captain was liable. Yet there is a question of contracts, not of the delict of wrongful damage, for which the *exercitor* was held liable by another action if it had been committed by an employee: the *actio damni adversus nautas* (D. 44.7.5.6). It is evident that Antigone did not want to be liable, but it is the legal argument for that which counts.

¹⁵⁷ See Kaser (1971: 607).

¹⁵⁸ D. 14.1.1.21.

4.12. *Utilitatis causa*

Roman law was based on actions and some principles, like privity of contract. But we sometimes see that the Romans deviated from these on the ground of utility: *utilitatis causa* is the justification for it. An example is the exception to the *actio exercitoria*. If somebody delivered the captain of a ship a mast to replace a broken one, he could sue the captain's principal directly for the costs. The reverse—for example, for repairs to the wrong mast—was not possible. But an exception was made if the ship carried foodstuffs for the *annona* of Rome, *utilitatis causa*. Evidently the supply of Rome was important enough to grant the transporter his own action against his captain's contract partner: an exception to the principle of privity of contract.¹⁵⁹ Such public policy has recently received a good monograph treatment by Navarra.¹⁶⁰ Another example of intervention, evidently for the public good, is the way a bankruptcy was handled (as mentioned in §5.4: *D.* 16.3.8, also *D.* 42.5.24).

Thus inroads were made into the principles of private law, and it is clear that this was also done for reasons of trade and finance. They do not form a separate body of rules; all citizens could avail themselves of them, but in practice they will have been used mostly by the professionals in trade, commerce, and finance. As such we may speak of private law, tailored for commerce; and, if one keeps this in mind, one may also call it Roman commercial law.

4.13. Public regulations

Regarding sea transport, jettison (*iactura*) could have an impact on commercial activity. If a captain, to avoid shipwrecking, jettisoned cargo, all those who had an interest in saving the ship (that is, including its owner) were obliged to contribute to make the loss good, in proportion to their interest; passengers did not have to contribute (*D.* 14.2.1 pr., 2, 4). The same applied if the ship had been redeemed from pirates (*D.* 14.2.2.3). This was the so-called *lex Rhodia de iactu*, probably a customary common law of the sea of the eastern part of the Mediterranean and incorporated into Roman law.¹⁶¹ Also the Aedilician Edict on hidden defects in slaves and cattle was originally such a public regulation, valid on markets (see §4.1).

Other public law on commerce such as the regulation of markets (including the permission to hold one) exists,¹⁶² but these regulate the framework of the activities; they do not shape directly commercial relations between the participants. Yet they can naturally be of influence. Having the right to hold a

¹⁵⁹ *D.* 14.1.1.18; see Sirks (1991: 121–2).

¹⁶⁰ Navarra (2002).

¹⁶¹ Cerami, Di Porto, and Petrucci (2004: 266–7). See Purpura (1976; 1985).

¹⁶² de Ligt (1993).

market was of economic and commercial interest (D. 50.11.1).¹⁶³ There are also specific rules in public law regarding commerce, such as exportation prohibitions or taxes on trade, or customs duties. One with definite commercial interest was that of AD 370–5, forbidding the export of wine, olive oil, and fish sauce, whether to let barbarians taste these or for commercial purposes.¹⁶⁴

5. AGRICULTURAL, COMMERCIAL, AND FINANCIAL ACTIVITIES AND FINANCIAL CONSTRUCTIONS

Whoever has capital wants to invest it, since he needs or wants the revenues. Most capital sums in antiquity will have been small or very small and completely invested in the means for daily subsistence. But there were sufficient exceptions to create a demand for investments, which might be diversified over investments in land, commerce, and loans, of course against revenues. Within the larger household some kind of economy may have existed as well, enabling slaves to acquire a *peculium*.¹⁶⁵

5.1. Agricultural activities

Land must be tilled, or grazed, or mined, or else it is valueless. The ancients were well aware of this. On large estates this was done as farm management and completely acceptable. Land might be leased to somebody who would sublease it again. In as far as small industries, or trade, was implied, slaves and freedmen will have been used.¹⁶⁶ In the period from the second century BC to the second century AD, increased commercialization of agriculture appears, manifesting itself in the sale of agricultural products on the market, and the exploitation of manufactories of tiles and pottery.¹⁶⁷ Commerce in some products (grain, wine, olive oil, fish sauce, and pottery) extended over large parts of the Mediterranean and must have been sizeable.

¹⁶³ See de Ligt (1993).

¹⁶⁴ CJ 4.41.1: *Valentinus, Valens et Grat. AAA. ad Theodotum mag. mil. Ad barbaricum transferendi vini et olei et liquaminis nullam quisquam habeat facultatem ne gustus quidem causa aut usus commerciorum* (AD 370–375). The prohibition to sell arms etc. to barbarians, issued by Anastasius in 455–7, makes more sense, since the purpose was not to improve their war capacity by selling to them (CJ 4.41.2). On customs, see Klingenberg (1977).

¹⁶⁵ See Gamauf (2009).

¹⁶⁶ Cerami, Di Porto, and Petrucci (2004: 69–73).

¹⁶⁷ Cerami, Di Porto, and Petrucci (2004: 303–7, 313–16).

5.2. Commercial activities

Trade and commerce cannot exist without financing. It is fine if a trader has sufficient capital to buy goods himself and sell them later on, subsisting in the meantime on his remaining capital, but practice was and still is different. A good deal attracts investors, people who want to share some of the profits, and they either participate in the enterprise by providing capital or they provide loans to merchants. Many texts in the *Digest* deal with loans. Trimalchio boasted that he lost several ships but made all his losses good and more than that with his last ship. He may represent the type who did it on his own, but normally people wanted to spread their risks. The adage Rathbone found for agricultural economics must also have applied to trade: minimize losses, and that meant reducing risks.¹⁶⁸ That called for attracting others to spread the risks. Plutarch relates a scheme of Cato the Elder's of attracting investors and spreading his own (and also their) risks in commercial activities (see §5.3). Shipping could also be a joint enterprise. Slaves would be useful as middlemen, since, apart from the fact that they might be very good in commerce, providing them with a *peculium* for their business set a limit to the risks (see §4.11).¹⁶⁹ But, since their owner was still directly liable and could recall the *peculium* at any moment, it remained a direct engagement in whatever enterprise the slave undertook, be it with a potential cap. Such caps could also be made in regard to the type of enterprise: by a *iussum* the owner could specify the kind or kinds of enterprises his slave was allowed to undertake.

Commerce was also engaged in in other, indirect ways. A *plebiscitum Claudianum* of 219–218 BC prohibited senators from owning ships of more than 300 amphorae capacity, thereby blocking them from large-scale commercial activities. The exploitation of their estates was not of course considered such an activity, but was normal farm management, so small-scale ships or land transport had to be used for transporting the products.¹⁷⁰ Lending money was permitted. A way for these wealthy citizens to invest in commerce nevertheless, in such a way that they shared in the profits and achieved a higher return, was to use middlemen of free status, as with Cato the Elder's freedman Quintio (see §5.3). Slaves would not do, since their activities were considered to be their masters'. Although they could contract and join a partnership (*D.* 17.1.18), yet they could not be sold (see §4.7). A freedman might borrow capital from his manumissor and invest in trade or an industry, yet in this case the senator would be merely lending. Another possibility was to grant a slave a large *peculium* and leave it with him after manumission.

¹⁶⁸ Rathbone (1991: 396).

¹⁶⁹ See in general, on the use of slaves and freedmen and their presence in industry and trade, Cerami, Di Porto, and Petrucci (2004: 69–73; on the legal constructions, see 73–80).

¹⁷⁰ Cerami, Di Porto, and Petrucci (2004: 307–13).

Rutilius, praetor in 118 BC, imposed a *societas* on manumissor and freedman (the so-called *societas Rutiliana*), which secured the return of 50 per cent of the freedman's estate. This was replaced later on by a claim for the manumissor for a part of the estate (with no claim if the freedman had three children). If this was done with a freedwoman, or with an informally freed slave (a Junian Latin), the complete deliverance of the inheritance was guaranteed (see §4.11).¹⁷¹

Similarly it was forbidden for decurions to partake in public contracts (building, and so on).¹⁷² They too may have evaded this by the use of straw men. The phrase in the *lex Irnitana*, which may well reflect a Roman standard clause, is meant to cover all financial involvement, which might influence negatively the interest of the town and its citizens. The sequence is: (1) *conductor* or *redemptor*; (2) *socius*; (3) *partem capere*; (4) taking advantage in any other or *mala fide* way. It follows the structure of investment by which the Romans financed such undertakings. First was the person who actually entered the contract with the state: the *conductor* or *redemptor*. Then came those who set up with him, such as their manager or representative, the partnership that provided the finances: the *societas*, which obtained a public law reinforcement in order to guarantee continuity. These *socii* (including the *conductor* or *redemptor*) had to invest money and would share the profits, severally or according to their investments or in another way, depending on the partnership agreement. Was it necessarily only their own money that was invested? Not at all. It is very possible, and likely, that they borrowed from others. These would have wanted back more than their loan. They could have made an agreement, reinforced by stipulation, to get a legal interest or part of the profits, whether or not in proportion to their loan. *Pars* in *partem capere* does not necessarily have to mean transferable stock;¹⁷³ it may refer to the *pars lucri*, the share in the profits in a partnership.¹⁷⁴ Only those who had invested

¹⁷¹ See, for a survey of the quota, Sirks (1981: 275).

¹⁷² *Lex Irnitana* c. J (on the contracting out of works or taxes): *ne quis Ilvir... condicito emitove, neve in earum qua re socius esto, neve ex earum qua re ob earum quam rem eove nomine partem capito neve aliut quit facito sciens dolo malo quo quid ex earum qua re ob earum quam rem eove nomine postea at eum perveniat*: 'no duumvir... is to "rent" or "buy" anything, nor is he to be a partner in any such affair, nor is he to take a participation in any such affair or with reference to such an affair or on account thereof, nor is he to do anything else knowingly and with wrongful intent in such a way that anything accrues to him thereafter from any such affair or with reference to any such affair or on account thereof' (ed. J. González, trans. M. Crawford, with correction, in González and Crawford 1986).

¹⁷³ The problem is largely caused by the phrase in Cic. in *Vat.* 29: *eripuerisne partis illo tempore carissimas partim a Caesare, partim a publicanis*? Many authors (such as Badian and Malmendier) thought that *partes* referred here to shares like the modern stock shares (all listed in Fleckner 2010: 474, n. 120). But see now Fleckner (2010: 450–94), who demonstrates the fallacy of this.

¹⁷⁴ D. 17.2.30 Paul. 6 *ad Sab.* *Mucius libro quarto decimo scribit non posse societatem coiri, ut aliam damni, aliam lucri partem socius ferat: Servius in notatis Mucii ait nec posse societatem ita*

in one way or the other could participate in the profits, and perhaps investors had to accept the risk of some loss as well: it would have been possible to agree on that as well. There is no indication in the texts on this point that such participations were transferred or transferable. However, to a certain extent such a loan was transferable, be it by way of novation. If it was a loan, recorded in the books of a banker who participated in the partnership, the loan might more easily be transferred within the books to another account holder. In that case a mere written record would have sufficed; or selling the slave who had granted a loan out of his *peculium*. Thus 'taking a participation' through loans would have been relatively easy and accessible for Romans. It would have had the advantage that many could participate and through this spread the risks, if any. Finally, the other ways by which people could get an advantage out of such contracts were by supplying the contractors at too high prices, or by other fraudulent behaviour.

5.3. Financial activities: Direct involvement

A loan was not disreputable in itself, and all people in antiquity lent or borrowed money, with or without interest. A rich Roman would have invested in *kalendarii*, loans with interest, usually paid on the first day (*Kalendae*) of the month. Such *kalendarii* could be bequeathed and provided the legatees with a steady income.¹⁷⁵ But some Romans tried to improve on this. Plutarch writes that Cato the Elder (234–149 BC) lent money but required his borrowers to form a partnership of fifty persons, with ships as security. He himself took one part through his freedman Quintio, who accompanied the expedition, and would have made much money by this.¹⁷⁶ This statement is correct. First, lending out money as, evidently, bottomry loans would allow him to charge a higher interest rate because of the higher risk. But the partnership his debtors formed, with others, meant that a lost loan would first be shared by the partnership and that he would get back a quota. For example, if ten borrowers and forty partners each invested the same amount, each ship carrying the value of one loan, the wrecking of one ship or the jettison of the cargo bought with the loan would mean the loss not of one entire loan, but only 1/50th of

contrahi, neque enim lucrum intellegitur nisi omni damno deducto neque damnum nisi omni lucro deducto: sed potest coiri societas ita, ut eius lucri, quod reliquum in societate sit omni damno deducto, pars alia feratur, et eius damni, quod similiter relinquitur, pars alia capiatur.

¹⁷⁵ See Giliberti (1984).

¹⁷⁶ Plutarch, *Cato Mai.* 21.6: 'He ordered his borrowers to invite many into a partnership: having come to fifty and so many ships he himself took a part through his freedman Quintio who sailed with the borrowers and assisted them. Thus the risk was not for the entirety, but for a small part against large profits.' Why the Loeb translation says that the ships served as security is incomprehensible.

the loan, since the loss was shared by all partners (as for the ship, if this was wrecked—although jettison will have occurred more frequently—Quintio and the unfortunate borrowers would each have to contribute in this loss according to their shares, thus 1/50th each, which should also be deducted). Yet Cato would still be able to charge a high rate of interest, in spite of the risk being lowered by this. In this way the risk was not for the entire loan but only for a small portion, while he could charge his high interest. The participation of Quintio would have ensured that this arrangement did not lead to careless behaviour on the part of the others, who would have enjoyed the spread of the risk but not the high interest. It further shows how a senator could evade the Claudian plebiscite by providing a straw man with capital.¹⁷⁷

Whether this story is true or not does not matter: it demonstrates that the Romans (and of course non-Romans) were open to financing commercial enterprises both directly and indirectly, that they were well aware of the advantages of accumulating capital and spreading risks, and that, since they knew of these, they will have applied these arrangements as well.¹⁷⁸ This will have been the case with the *corpora naviculariorum* and the *negotiationes*, which provided Rome with foodstuffs for distribution. Although these were public organizations, their structure was the same: to attract investment (investors had to maintain an investment of half of their fortune in order to enjoy the privileges, *D.* 50.6.6.6, 8) and to accumulate it, thereby, we may assume, reducing the risk for individual members.¹⁷⁹

5.4. Financial activities: Indirect involvement and bankers¹⁸⁰

Romans were able to make loans, and many will have done this themselves, while others will have done so through slaves or freedmen. While some apparently set up slaves and freedmen to be specialists in money affairs, others will have used people such as *nummularii*, moneychangers, or *argentarii* in their financial transactions.¹⁸¹ I shall use the term bankers for convenience, although it is true that such people cannot be compared exactly to modern bankers¹⁸² (at least, on the basis of what we know now). But they performed

¹⁷⁷ See Litewski (1973: 119); von Lübtow (1975); Purpura (1987).

¹⁷⁸ See Rathbone (2003: 197–229) on the financing of maritime commerce.

¹⁷⁹ See Sirks (1991: 83–107).

¹⁸⁰ See Andreau (1974; 1987; 1999) for banking in the Principate in general, and Cerami, Di Porto, and Petrucci (2004: 135–48) on the various revenues out of financial constructions within banks.

¹⁸¹ See Andreau (1987) and Cerami, Di Porto, and Petrucci (2004: 99–102) for a general picture. Petrucci (2003: 99–129) focuses on banking as reflected in legal writings.

¹⁸² A modern banker is somebody who as a profession borrows money at a certain rate in order to lend this out at a certain higher rate, in order to make a profit on the difference. Cf. Kay, Chapter 5, this volume, for bankers in the Roman Republic.

several services that we consider typical for a bank. They may have been slaves,¹⁸³ freedmen of rich Romans, or independent persons; they may have traded alone or as a company.¹⁸⁴ There were some special edicts regarding banks. One obliged bankers to issue accounts to their clients,¹⁸⁵ another obliged them to compensate claims,¹⁸⁶ yet another to make their accounts public.¹⁸⁷ They may later have come under the jurisdiction of the Urban Prefect, but whether that is sufficient to justify speaking of a banking law remains to be seen.¹⁸⁸ The banks primarily took on deposits.¹⁸⁹ Deposits may have been made just because the banker provided a better means of securing its safekeeping. It did not mean that the depositor would get his deposit back under all circumstances or be compensated, since the duty of care was low (the depositee did not get paid). Further, it was efficient to deposit capital with these bankers, since they could serve as intermediaries in transfers, moving money from one to another account. A banker would issue statements to his client that he owed him money out of the deposit and that it could be claimed from him, just as a private debtor could do. The same would go for an open deposit. A deposit could also be made with the explicit agreement that interest could be paid on it. It would thereby become a money loan to the banker and referred to as such in the banker's account. The usual form for such statements was the *chirograph*, an IOU (see §4.8.2). True deposits were protected in case of bankruptcy, since they remained the property of the depositor or were registered as such (see below). The banks financed public auctions,¹⁹⁰ and provided loans to third parties. It could be the bankers' loan, but whether this was done using their own money or that of a depositor, as long as the borrower was told whose money it was or for whom it was, it would be considered to be the depositor's loan (*D.* 12.1.9.8).¹⁹¹

The variety of accounts (or deposits) becomes clear in a text dealing with bankruptcy.¹⁹² *D.* 16.3.7.2–16.3.8 states that, if a banker becomes insolvent (he becomes a *decoctor*), a list of *depositarii* must be drawn up and the money

¹⁸³ Cerami, Di Porto, and Petrucci (2004: 144–57; for their *peculium* and the *mensa argenteria*, see 160–6).

¹⁸⁴ Cerami, Di Porto, and Petrucci (2004: 166–72).

¹⁸⁵ Andreau (1994); Cerami, Di Porto, and Petrucci (2004: 106–10, 175–86).

¹⁸⁶ Cerami, Di Porto, and Petrucci (2004: 186–9).

¹⁸⁷ Andreau (1994); Cerami, Di Porto, and Petrucci (2004: 192–3).

¹⁸⁸ Cerami, Di Porto, and Petrucci (2004: 102–6) on this point.

¹⁸⁹ See Bürge (1987: 536–55), especially on deposits with banks and the question of interest.

¹⁹⁰ Cerami, Di Porto, and Petrucci (2004: 115–29); also Andreau (1987: 588–97; 1999: 33).

¹⁹¹ This text is not dealt with in Cerami, Di Porto, and Petrucci (2004; see n. 195 for the text). The reason for this is not that the banker represented the depositor in the contract. It was the fact that the borrower was told that the money was provided on account of a third party. It implied that, as soon as the loan could be reclaimed, the borrower had no good cause to keep it. The third party would therefore succeed with a condition against him. As a result, the loan moved out of the power of the banker and of his eventual insolvency. See also §§5.4 and 5.5.

¹⁹² For a case of bankruptcy in probably AD 188, due to losses, see Ligios (2015).

found in deposit, supplemented if necessary with private assets of the *decoctor*, distributed between them, without regard for the moment of deposit. It implies that depositors might get back only a percentage of their deposit. It implies that the deposits were treated as fused together and not as separate deposits. Such a fusion would have meant the end of the property of the depositors and the beginning of the property of the banker, or a co-property between the depositors. The latter view is defensible in Roman law, but it is not the case here. It indeed presumes that all deposits were made simultaneously, but we would expect no deficit in that case. But the following fragment (D. 16.3.8) states that all the banker's assets were taken into account for this and not only the part marked as deposits—on the grounds of public utility, because of the necessary use of bankers: *idque propter necessarium usum argentariorum ex utilitate publica receptum est*.

D. 16.3.7.2: 'Whenever bankers become insolvent, it is customary to take account of the depositors first, that is, of those who had money on deposit, not money at interest with the bankers, or invested in conjunction with the bankers, or left with them to make use of. This is the position so long as account is not taken of those who received interest even afterwards, because they renounced the deposit. [7.3:] Likewise, it is asked whether the order in which those who deposited should be considered or whether, in fact, account should be taken of all the depositors together. And it is settled that they should be taken together; for this view is expressed in an imperial rescript.' [D. 16.3.8:] 'The said privilege is exercised not only over the remainder of the deposited money found in the property of the banker, but over the whole property of the defrauder. And this has been adopted on the grounds of public utility on account of the necessary use of moneylenders. Clearly, expenses which have been incurred necessarily always take precedence; for it is customary that the summation of the assets is done with this deducted.'¹⁹³

Thus deposits were apparently only registered separately as such. They formed open deposits (*depositum irregulare*), but as claims they are treated with preference: it is the ancient form of protection of the simple savings account.¹⁹⁴

¹⁹³ D. 16.3.7.2 Ulp. 30 ad ed. *Quotiens foro cedunt nummularii, solet primo loco ratio haberi depositariorum, hoc est eorum qui depositas pecunias habuerunt, non quas faenore apud nummularios vel cum nummulariis vel per ipsos exercebant. Et ante privilegia igitur, si bona venierint, depositariorum ratio habetur, dummodo eorum qui vel postea usuras acceperunt ratio non habeatur, quasi renuntiaverint deposito.* D. 16.3.7.3 Ulp. 30 ad ed. *Item quaeritur, utrum ordo spectetur eorum qui deposuerunt an vero simul omnium depositariorum ratio habeatur. et constat simul admittendos: hoc enim in scripto principali significatur.* D. 16.3.8 Pap. 9 quaest. *Quod privilegium exercetur non in ea tantum quantitate, quae in bonis argentarii ex pecunia deposita reperta est, sed in omnibus fraudatoris facultatibus: idque propter necessarium usum argentariorum ex utilitate publica receptum est. Plane sumptus causa, qui necessarie factus est, semper praecedit: nam deducto eo bonorum calculus subduci solet.* The same rule is rendered in D. 42.5.24 Ulp. 63 ad ed. The *privilegia Silver* (2011: 302) thinks are the depositors with non-interest-bearing deposits, are, on the contrary, the *privilegia exigendi* of, particularly, the fisc: Kaser (1971: 465).

¹⁹⁴ Cerami, Di Porto, and Petrucci (2004: 111–15, 193–200).

It was done to support the public faith in banks. But as soon as a depositor had received interest, he fell out. Andreau, who has studied the Roman financial world extensively, assumes on the basis of this and other texts that many such deposits were *deposita irregularia*. For him it concerns ‘dépôts non-scellés’, not sealed or marked deposits, which could or could not be used by the bankers. According to him, the distinguishing difference between deposit and loan for consumption was for Ulpian the receiving of interest, not the deposit being open or not.¹⁹⁵ I share this view, but not the apparent interpretation of the form in which the deposit was made—namely, as a separate physical deposit. The *depositum irregulare*, which applied only to money, had as characteristic that instead of the deposit itself the same amount of the same kind could be returned (according to Zimmermann since a quantity rather than a thing had been deposited).¹⁹⁶ Also, *mutuum*, a loan for consumption, is characterized by the proprietary transfer of the money, not by interest on it (*D.* 12.1.32). More distinctive is, in my opinion, that, if the deposited money was not returned, the equivalent in money had to be returned if the depositor raised the action on deposit. Considered from that perspective, it could be said that a deposit of money remained a deposit, even if other coins were returned. And not only that: if such an agreement had been made with a subsidiary pact (*pactum adiectum*) on interest, Scaevola was of the opinion that this could be claimed too under the contract of deposit, and likewise Papinian. From that perspective, there is no reason why under good faith the depositee should not fulfil this obligation too.¹⁹⁷ Paul also accepted this form of deposit.¹⁹⁸

¹⁹⁵ Andreau (1987: 538–44).

¹⁹⁶ See Zimmermann (1990: 215–16).

¹⁹⁷ *D.* 16.3.28, Scaevola, *Replies, book 1*: ‘Quintus Caecilius Candidus wrote a letter to Paccius Rogatianus in the following terms: “Caecilius Candidus to Paccius Rogatianus, greetings. As to the [twenty-five] *sesterces*, which you wished to be lodged with me, I inform you by this letter that they have been entered on my account. I shall attend to this sum as soon as possible, to see that you do not have it lying idle [producing no return]. That is to say, I shall make it my business that you get interest on it.” It was asked whether on the basis of this letter interest also could be claimed. I replied that in a good faith action interest is owed whether Caecilius received interest or whether he used it in his own affairs.’ Bürge (1987: 539) reads this text differently: only if Caecilius had received interest on the deposit or had used it to his own advantage, so that he did not need to borrow (and saved interest), had he to pay interest. However, Scaevola’s statement is general, probably because Caecilius committed himself to interest: he has to pay interest on all occasions. Papinian refers in *D.* 16.3.24 to a constitution that allows the magistrate to rule in bona fide actions as if a stipulation on interest had been agreed upon too. Further, he may well have implied in *D.* 16.3.24 that to assume a deposit is blocked by the express agreement to return the mere quantity, but not if it left open what to return; and that interest is only not due if the depositee accepts as a favour (*beneficium*), which, it is likely, bankers would not easily do. See Bürge (1987: 536–55); Zimmermann (1990: 215–19) (for literature), and especially now Pieler (2004) on the question of interest (Pieler thinks that it was possible to receive interest on the deposit).

¹⁹⁸ Paul *D.* 16.3.26.1. When Paul says that the *chirograph* exceeds the limits of *depositum*, he means that a subsidiary pact is present as well.

An analysis of *D.* 16.3.7.2–3 and 8 leads to the following. If somebody had deposited money in a separate bag, with his name on it, he could have vindicated it and stayed out of the bankruptcy. If somebody's deposit had been used in his name by the banker as loan to another person, he would have got an action (that is, the *condictio*) to reclaim his loan straight from the borrower (*D.* 12.1.9.8)¹⁹⁹ and likewise stayed out of the bankruptcy (that is, he was not a co-creditor). Others had invested their deposit together with the banker: by that they had turned their deposit into a loan and the money had become property of the banker. (A depositor could allow the banker to use his deposit for himself at once or later on. It would turn into a loan by that, but only after it had actually been used (*D.* 12.1.9.9, 12.1.10)). The same applied to those who had put their money straight from the beginning at interest with the banker. Thus the depositors in question concern depositors whose deposits are no longer distinguishable: they must have fused into one mass. If this was a separate chest, they would be co-owners but also stay out of the bankruptcy. Thus their deposits were fused with other deposits and remained a mere entry, as deposit, but now an open deposit, in the banker's accounts. Yet some had received interest afterwards. This is interpreted not as an automatic turning of the open deposit into a loan (because of the interest), but as a renunciation by the depositor of his right to consider his deposit as deposit. What it is, is not said, since it is not important: important is, that such cases are excepted from the preferential treatment. The text says *quasi renuntiaverint deposito*, 'because [or: as if] they renounced the deposit'; not, because they made a loan.

Returning to *D.* 12.1.9.8: this may have concerned an open deposit, registered by entry in a banker's accounts, and mixed with the banker's working capital. By that the coins became the banker's, but, since the depositor asked him to lend, or allowed him to lend from this account, it became traceable to the depositor, and so he got his *condictio* (the action to reclaim; see §5.5).

Thus the text attests to the existence of 'open deposits' just as nowadays and to a practice in which many small deposits make lending on a large scale possible. Those who use the bank for a real deposit—namely, for safe keeping—are protected. This is the public function that should be trusted.

¹⁹⁹ *D.* 12.1.9.8 Ulp. 26 ad ed. *Si nummos meos tuo nomine dedero velut tuos absente te et ignorante, Aristo scribit adquiri tibi condictioem: Iulianus quoque de hoc interrogatus libro decimo scribit veram esse Aristonis sententiam nec dubitari, quin, si meam pecuniam tuo nomine voluntate tua dedero, tibi adquiritur obligatio, cum cottidie credituri pecuniam mutuam ab alio poscamus, ut nostro nomine creditor numeret futuro debitori nostro.*—'Where in your absence and without your knowledge I give my coins as though they were yours, Aristo writes that the *condictio* accrues to you. The same question was put to Julian, and he writes in the tenth book that Aristo's opinion is correct, adding that there is no doubt in the case in which it is in accordance with your wishes that I pay out my money for you that the obligation accrues to you; for it happens daily that when we are about to lend out money we approach another for a loan for ourselves on the basis that our creditor shall make the payment on our account directly to our future debtor'. For the *condictio*, see Kaser (1971: 592–600). See also n. 197 and §5.5).

It is usually assumed that rich Romans would invest through their freedmen and slaves, but I do not see any reason why we would not assume that senators and other magnates diversified their interests: a part through their dependants, a part with bankers, and their freedmen again taking loans from banks. It would water down their revenues a bit, but it would make those revenues and their investments more secure, and, as we know from Rathbone,²⁰⁰ security is what they preferred in the long term.

5.5. Financial constructions

The usual way to lend money was a loan for consumption (*mutuum*), which consisted of a transfer of money basically without interest. This interest was arranged by separate agreement and carried a fixed maximum interest rate. Bottomry loans (*pecunia traiectica*, *foenus nauticum*) carried a higher interest rate to compensate for the risk of shipwreck (see §4.8.3). The law developed ways and interpretations to expand this contract from the mere straight transfer of money. A could order B to grant C a credit with his own money as if from A: a credit-mandate. B has used his own money as if it were A's. The relation between A and B is a mandate, and between B and C a loan for consumption. Theoretically only B can reclaim the loan from C—it was his money; if C fails to repay, B can reclaim his losses from A. But, and here we see an accommodation to practice, the Romans jumped the privity of contract here. *D.* 12.1.9.8 says: in such a case A can reclaim directly the loan from C, with a condition. This is truly remarkable. In our terminology: B would have been the representative of A and would have 'fallen out', establishing a direct contract between A and C. But in Roman law there was no such representation: this effect resulted from the possibility to use a condition here, by which one could claim what another ought to give. In that case A could directly claim the debt from C with a condition (*D.* 12.1.9.8). It would be the same if A had been absent and not known about it. If the money had been A's, A could claim of course too (*D.* 12.1.32). The reasoning is: *cum cottidie credituri pecuniam mutuam ab alio poscamus, ut nostro nomine creditor numeret futuro debitori nostro*—'because daily we ask, when wanting to lend out, another person that he pays out, in our name, to our future debtor'. This other person may have been a friend, but I think a banker is more probable.

We find another financial construction in *D.* 45.1.122, where both contracts, *mutuum* and *pecunia traiectica*, are used to maximize the gains and minimize the risk. During the safe sailing season (the 200 days in the text) the contract was framed as a bottomry loan (*pecunia traiectica*), with a higher

²⁰⁰ Rathbone (1991: 364).

interest rate but the risk of losing it by shipwreck, when the cargo bought would go down too; outside of that it turned into a normal loan (*mutuum*) with lower interest but still a claim (perhaps reinforced by a personal security) in case of shipwreck.²⁰¹

6. THE IMPACT OF COMMERCE ON LAW

Commerce is more than the small-scale husbandry of farmers and land-owners. It connects individual farms and settlements; it connects individual local markets. The use of money makes it possible to transcend the limitations of barter. But commerce also needs ways of communication: land and sea routes. Once these basic requirements have been fulfilled, law can follow to facilitate commerce. The introduction of *ius gentium* contracts and the *actiones adiecticiae qualitatis* in the second century BC reflect the expansion of Rome over Italy and beyond, and with it the expansion of trade. It called for an increase in scale of enterprises and capital, for cooperation between Romans and other nationals, and the contracts of the *ius gentium* made that precisely possible. Likewise for the expansion of the public distributions at Rome, and the farming-out of the tax levy in the conquered provinces, as well as for the construction of roads, aqueducts, army supply, and so on, the authorities required accumulation and stability of capital over a period of time: the development of *societates publicanorum*, and in the second century AD of the *collegia negotiatorum* and *naviculariorum*, made such accumulation possible. Rome's imperial expansion also created a great internal market, connected by the Mediterranean Sea, where, after Pompey had destroyed the Cilician pirates, traffic was safe everywhere. This of course does not mean that all local markets were now connected, but it did make possible trans-Mediterranean exportation of staple goods such as grain, olive oil, wine, or other goods like *garum* and pottery. Thus, in law, devices, suitable for commerce, were developed, while we see at the same time in the law of sale a survival of the original small-scale trade (the barter sale with the *periculum emptoris* rule). Theoretically special commercial courts, like in Athens, might have been instituted, and in a way that of the *praetor peregrinus* at Rome was one. But he judged not just commercial cases but all cases where non-Romans were involved; and his colleague the *praetor urbanus* could judge commercial cases between Romans. In the Principate and later, the *cognitio extrordinaria*, which became the standard procedure, made no distinction between nationalities nor between the nature of the cases. The development of commercial

²⁰¹ Sirks (2002a).

rules and commercial and financial devices was, in any case, in large part a consequence of the imperial expansion of Rome. In its turn, this development made commerce on a large scale possible, both as regards the distances and as regards the size of the enterprises. The financial instruments made management of capital possible without actual physical transport. Investment capital was available from the upper class through their middlemen, but, as is submitted below, also from the capital accumulated in the tax-farming companies.

7. THE IMPACT OF COMMERCIAL AND FINANCIAL PRACTICE

The rules and certainly the way banking matters were practised must have allowed for interesting possibilities. In a reciprocal process, practice and law will have stimulated each other. What might the impact of the legal possibilities have been? In the following pages, I merely offer some suggestions.

7.1. The role of credit

It has been said that coinage appears to have played a key role in the actual operation of the Roman imperial system.²⁰² In view of the fact that the state and emperors later on issued only coins, it is a statement that certainly carries much weight. Further, it was indeed a reference point in salaries and prices.²⁰³ But is that all? Already the giro-system as practised on the estates Heroninos managed shows that the amount of coins did not have to equal the value of transactions done. Rathbone estimates that the credit arrangements roughly doubled the quantity of the coins.²⁰⁴ And there were more such conglomerates of estates. In fourth-century Egypt, credit played a great role in the collection of taxes;²⁰⁵ it will not have been different in other provinces and in the centuries before. There have already been expressed nuances and reservations against the view that the intrinsic value of coins wholly determined the Roman economy.²⁰⁶ A question

²⁰² Corbier (2005: 327). See also Jongman (2003), who argues for a preference to keep (high) liquidities, albeit in gold specie.

²⁰³ Corbier (2005: 328).

²⁰⁴ See Rathbone (1991: 318–30, 327); also presumably in *CJ* 11.48.8.2, issued for Gaul in 371. The credits and debits Rathbone speaks of resemble very much the technique of Gaius' *nomina transscripticia et arcaria* in Gaius 3.128–133.

²⁰⁵ Bagnall (1993: 75–7).

²⁰⁶ Corbier (2005: 329–30), relativising the two major changes: the shift from silver to gold as the basis for coinage, and 'the shift from a more "monetarized" economy to a more "natural"

not often discussed is what the reason may have been for the ‘devaluations’ ordered by the Roman emperors.²⁰⁷ According to Harris, who already underlined the importance of credit, they merely increased the fiduciary value of the money.²⁰⁸ And what about the economic system of the Empire, which comprised more than the imperial administration? The financial accounting techniques, with the accompanying legal techniques to make transfers possible and safeguard the interest of depositors, means that capital could be amassed.

7.2. Capital and its use

Where may the deposits for that capital have come from and, more importantly, what could the capital have been used for? Regarding the first question, it is possible but not likely that in the end small depositors, through interconnected bankers, created a huge deposit, which could be invested again. Much more likely is that rich Romans used middlemen and bankers to place loans. Third, the system of accounts and guarantees must also have created a circulation of fiduciary money; in focusing on coinage, one might forget this. Fourth, deposits with a bank, if not reclaimed at once, allowed a banker to grant credit to merchants and other people. There were depositors who expressly allowed him to do so; others apparently did not mind as long as they would get their money back, most likely with interest. In economics this is known as creating secondary money: the amount of money circulating is expanded. It allows an increase of production.²⁰⁹

But who needed those deposits? There will always have been a varied group of people who needed a loan for a certain period: to buy and sell (as the Pompeian and Puteolean tablets testify), to pay death duties, to provide a dowry, and so on. For example, in the grain trade money was needed to buy the crops at the harvest season, and revenues would come in during winter time. To bridge that period capital was required, as temporary loans. Further, the auctions demanded credit too.

But there was another group as well that must have needed credit: the *publicani*. They contracted the levying of taxes and squeezed their provincials.

one’, together with a shift ‘from a unified economy covering the whole empire to an economy divided into regional subsets’.

²⁰⁷ Corbier (2005: 332–46) discusses the devaluations and questions such as whether bad coin drove out good coin, but one still wonders why the emperors ordered these. Was it because the revenues dried up? Did these not suffice for their extra expenses? Was it done to finance their expenses in an inflationary manner? Did the mines dry up? The nearest Corbier comes to this is on pp. 353–60, where she discusses the metal stock. Yet this remains, naturally, restricted to the coins in circulation. But see Wilson (2007) on these issues.

²⁰⁸ Harris (2006: 20 and *passim*) as concerns the role of credit.

²⁰⁹ See Kay, Chapter 5, this volume.

Their activities required investment in staff, but also a certain amount of liquidity and credit, as is certain for the tax farmers of fourth-century Egypt. The state needed money to spend that would be levied only at a later time. We read about all the security that had to be given for tax-farming contracts, but not about the cash required. This suggests that those in the *societas* apparently did not have all the capital required themselves. Yet the expenses of the state had to be met. So the *societates publicanorum* must have had partners who disposed of much money, or used bankers.²¹⁰ It is not impossible that some of the *socii* were bankers. What speaks for this is their expertise in financial affairs. They will have done business not only with their own capital: they will also have used the capital of their clients. Perhaps their clients asked for this, perhaps they left it to their banker to invest it in the best way. But they will have done it for a share in the profits. Here the banks must have played an important role. Through them the doubtlessly enormous demand for capital must have been spread over larger groups of investors. Thus there would have existed a kind of sub-participation. If, for example, the participation in a *societas publicanorum* of a banker was 10 per cent, and he used for half of it the money of one client, then, although this client was not partner in a *societas publicanorum*, he would still have a *pars* of 5 per cent invested in it in an indirect way.²¹¹ Perhaps the reference to *partes* refers to such participation, but certainly not to shares as in a stock market.²¹²

7.3. Handling the tax revenues

Would all money collected as taxes have been transported from the provinces to Rome and back again to the provinces, with a portion left in Rome and Italy for expenditure there (buildings, roads, and so on)?²¹³ Some expenditure may already have been made in the provinces themselves, but what about the remainder? Parsons has observed that the weight of coins will have hampered transport considerably and led to the use of letters of credit.²¹⁴ Is it not more likely that in the period the tax-farming companies collected the taxes they will have used money orders, if not for all, at least for a part? That would mean that there were deposits of money in the main economic centres of the

²¹⁰ Cf. Cicero *ad fam.* V.20.

²¹¹ If he had made a loan, with interest, he might, if the banker had given him a *chirograph*, sell this participation (and if made through a slave with *peculium*, he could sell the slave). If he had joined a partnership with the banker, he would, proportionally to his contribution, share in the profit, but also in the loss. In this case he could not sell or transfer his participation.

²¹² For the very profound and convincing refutation by Fleckner, see n. 79.

²¹³ Corbier (2005: 349–51) deals with the question of circulation of coins through the Empire.

²¹⁴ Parsons (2007: 120). There were several mints in the Empire, presumably for the same reason.

Mediterranean that could be used for such transfers. Corbier's theory of the three circles suits as a rough model of circulation. The inner circle is Rome and Italy, which only receives and spends; the next circle are those provinces that yield more taxes than they absorb government expenses; the last and outer circle is those provinces that yield less taxes than they require in expenditure, primarily for the army.²¹⁵ As to taxation, Corbier assumes that the expenditure the taxes were used for (the army and other expenses) were mostly constant and inflexible. Further, the provinces did have unequal tax arrangements, until at least the end of the third century, with Italy completely exempted until very late on.²¹⁶

Yet, if there was such an amount of capital amassed for the tax-farming companies, is it not possible that it, or part of it, was used to grant credits again, to other businesses, from the floating capital, particularly since here the chance that all accounts were closed was near to nil (the tax-farming companies usually being continued)? They were not, of course, merchant banks, but the aggregate of all investments and participants may have functioned to some extent as such, to make temporarily idle money bear revenues. Cannot it have been that the financial machinery, existing in any case for the contracting and collecting of taxes, will have been used for other purposes as well, such as setting up commercial enterprises to export wine, olive oil, and *garum*, or to fabricate and export products like pottery?²¹⁷ If you want, for example, to produce and export pottery or *garum* on a large scale, you need to make a huge investment: you have to set up a factory, to develop the means of large-scale production, to buy the materials, to set up a distribution apparatus and to export and sell the product. Or, if the production remains with many small producers, the export may still be in one set of hands, or few. It will take a long time before the revenues will come in, but the advantages of large-scale production or exportation will make the investment worthwhile.²¹⁸ If capital was needed, it must have come from somewhere, and we should first think of rich landowners. But what about the managers of the tax-farming companies? Could not they have played a role in the economy too, next to other bankers (where the amassed capital sums may have been smaller)? By granting credit on the basis of the steady turnover of the farmed taxes, they would have increased the amount of money circulating by creating money. It is an important aspect of banking nowadays, but only recently considered in

²¹⁵ Corbier (2005: 350).

²¹⁶ Corbier (2005: 361–5).

²¹⁷ See Ward-Perkins (2005: 97) for an example of a transregional industry: the pottery industry at La Graufesenque, which exported all over the western Empire in the period AD 20–120.

²¹⁸ In D. 50.5.3 an immunity is given for those who build a ship of at least 50,000 *modii* for the transport of foodstuffs to Rome, or five ships each of at least 10,000 *modii*. It indicates that the advantage of large sizes was recognized.

analyses of antique economy, as by Harris.²¹⁹ But already the masses of capital must have been considerable as long as the *tributum* was farmed out.

Lacking data, we cannot draw up a calculation. We can only say that the size of these enterprises, which were the size of the tax of an entire province (and of course this will have differed according to the province) or of a portion of the transport of the supply for public distributions,²²⁰ exceeded by far normal business investments and must have drawn capital both from rich investors and from a geographically wider range than just one or more neighbouring towns; and that they required all of the financial expertise and instruments available. But these accumulations of capital must also have made it possible to invest in a wider range than normally would have been the case—namely, local magnates financing local industries or enterprises.

7.4. Replacing the tax-farming companies

Lo Cascio points out that, where the revenues are uncertain and subject to variation, contracting out their collection has the advantage of a regular and steady income for the state. Otherwise the authorities would have to ensure a good registration (tax registers) and collection to control variations.²²¹ But how much profit did the tax-farming companies make? With the customs there will not have been much profit. Customs are easily checked: you can count the people passing and estimate what they carry and what will be taxed. So here the tax farmers will have made some profit, or else they would not have had any revenue on their investment, but the state could reasonably well check that they did not ask too much. The only factor here that could change is the amount going through the customs. With the collection of the *tributum* (land and poll tax), things may have been different. Theoretically, the revenue could be estimated fairly precisely: all land would be assessed and a levy set (set aside for a moment that this required a sound and reliable registration system, as described in *D.* 50.15.4 pr.). But the disrupting factors are, first, crop failures and, second, loss during storage and transport. As soon as the taxpayer has no reserve, a problem arises: seizing and auctioning his assets will mean no revenue at all in the next year. The buyer at the auction will have to pay, but there may not be a buyer at all and thus no revenue. It is not for nothing that we see in the Later Empire the periodical remission of *reliqua*, open tax debts, and these are often interpreted as tax debts of rich people who stalled paying, but it may well have concerned also people who suffered from a crop failure

²¹⁹ Harris (2006), and see Kay, Chapter 5, this volume. Also Haklai (2013).

²²⁰ Here we can make some calculations: 200,000 persons receiving 5 *modii* of grain per year make 1,000,000 *modii* grain, transported by ships of maximally 50,000 *modii*: twenty ships, which make, e.g. two trips a year: ten ships needed, lasting twenty years, costing, e.g. 500,000 *sestertii* per ship.

²²¹ Lo Cascio (2000: 183–4). For the customs the system of contracting out remained for this reason advantageous for the state.

and who got a postponement. Such risks the tax farmers will have calculated into their offers for the contract. Further, the system offered them possibilities of squeezing the taxpayers, since they controlled the tax registers. As long as the provinces were considered as conquered by Rome, the Romans will not have bothered much about this. If these presumptions are correct, it suggests that the tax-farming companies will have enjoyed some considerable profit. A further argument that this could be the case is the *epimetrum* mentioned in the Later Empire, which is the percentage on the collections in kind for loss during transport. It is arguable that the assessment was set considerably higher than needed, just to cover loss and fraud. But, if this is the case, then the tax-farming companies that collected the *tributum* could have made good profits in good years, while still making no loss in bad years by using their buffer and squeezing the provincials.

For that reason it would have been interesting for the government to increase its income by taking over the collection itself and thereby the profit of the tax farmers.²²² As soon as the provinces were no longer considered conquered territories but rather integral parts of the Empire,²²³ which certainly was the case after the *constitutio Antoniniana*, this idea would have been increasingly attractive. But, in order to take over this collection, the government would need, *vide* Lo Cascio, to be sure that it had at its disposal an adequate registration (land register) and a reliable and stable collecting instrument. In order to achieve this, the town administrations had to become responsible and accountable. It is not clear when the *societates* of tax farmers of the land tax were replaced by direct taxation.²²⁴ One view is that it had occurred by the end of the second century AD, another that this transformation took a long time, well into the fourth century.²²⁵ Individual tax farmers remained anyway. Since the decurions were to have a major role in the tax levy, and their position became mandatory only in the course of the third century if not later, the latter view seems to me more plausible. It would be consonant with the taxation reforms attributed to Diocletian.

The shift from contracting out the farming of the land tax to imposing and collecting it as a duty must have been profitable for the government, since the costs of these tasks were now borne by the taxpayers themselves.²²⁶ The profits fell to the administration too. But it would also have implied that the circulation of money changed, that the concentration of capital in the provincial companies fell away, and that eventual capital available for commerce and industry dwindled and

²²² Lo Cascio (2007: 632) assumes that directly levying the tax must have lowered the burden of the tax. Theoretically this is true, but is it unthinkable that the imperial administration took the buffer?

²²³ See Corbier (2005: 364), who places this moment between Hadrian and the Severi.

²²⁴ See Mateo (1999: 154–66) for a survey of the various opinions in this respect.

²²⁵ Lo Cascio (2005: 132, 154) sees a long transition, perhaps into the fourth century; Lo Cascio (2007: 631–2), on the other hand, sees a transition completed by around AD 200.

²²⁶ See, e.g. *CTh* 11.23 for the duty to levy certain taxes, *CTh* 11.1.22 on the transport costs, borne by the municipalities. Of course the government had new costs in the form of supervising the levy, but these transaction costs may have been low.

became less easily available, not being concentrated in a few hands, as before. It would have returned to the provincial and local level where it had been before.

There was a parallel change in the beginning of the third century, which may also have influenced the availability of capital. The transportation of foodstuffs to Rome, if done on a large scale, required huge investments. Next to contracting this out to solvent entrepreneurs in private partnerships, the emperors accumulated capital through *collegia naviculariorum* with voluntary membership. But the Severi no longer contracted out, but imposed the membership as a *munus* upon the wealthy provincials. It was an advantage for the emperor, since it was now an obligation of locals with whom the necessary capital was tied up, through succession, in land and ships. It will have strengthened his position too, through the centralization of imposition and levying.²²⁷ But this must also have meant that a sizeable amount of capital was now withdrawn from the free capital market and tied up. It would be as if millions were compulsorily invested in state bonds, without interest, but with income-tax deductions for their owners, never to be redeemed.²²⁸ Parallel to this, membership of a town council, a position requiring capital, became a duty as well, and likewise froze private capital.²²⁹ In a way part of the state expenditures were demonetarized, but it also meant that a sizeable part of private capital was attached to some specific and very long-term investments and no longer available for other investments. Thus the shift, intended presumably to increase the tax revenues and lower expenditure in collecting, would have had two effects: removing the existing capital accumulations and leaving capital at a local and provincial level, and further tying up part of this provincial capital in long-term semi-public investments.

7.5. Effects on the economy

What would such shifts have meant for the economy? On the local and provincial level not much. Less capital would have been available for free investments, but it does not have to have been so much. But on the level of the entire Empire, it would have been a blow for banking business and investments across more than one province. Andreau links the decline of banking in the third century (though bankers remained)²³⁰ to the disappearance of

²²⁷ See Buraselis (2007: 24–5) for the need with the Severi for legitimization of their rule and their relation to the Senate.

²²⁸ Similarly the obligation imposed under Hadrian on provincial senators to invest one-third of their assets in Italian land must have withdrawn the amount of this one-third of their assets from the capital market and tied up in land. One wonders what the effect on enterprise was.

²²⁹ See Sirks (1993: 165–7). Here, however, the capital was already tied up on account of the minimum required to be councillor.

²³⁰ Cerami, Di Porto, and Petrucci (2004: 201–28) on banks and bankers in the fourth and fifth centuries and under Justinian.

auctioneering (where the *argentarii* would have been providing the credit) and the economic crisis.²³¹ This explanation does not entirely satisfy. Were there not other financial activities that might also be connected with banking? First: did auctioneering indeed disappear? The legal texts assume it continued to exist and that seems logical, although its scale may have become smaller. How otherwise could the fisc have realized its claims if it could not auction the assets of its debtors? As to the crisis, how might an economic crisis damage banking? Because less was bought at auctions? Because fewer savings were deposited? The latter may indeed be the case. But an economic crisis also means fewer investment opportunities. Silver suggests that banking became unprofitable, since the maximum interest no longer compensated the rate of inflation.²³² Yet we do not see loans disappear from our sources. The question should be: what caused the economic crisis? What is precisely meant by the economic crisis? And may the latter not also have been caused by other phenomena, such as the change in tax levying?

If the above suppositions are right, it would mean that capital available for commerce and industry dwindled and became less easily available, not being concentrated in few hands as before. In the wake of this, a source of capital for investments in production industries and export would slowly have dried up in the course of the third and fourth centuries.²³³ It may have contributed to the decrease and change in commercial activities. As regards commerce, the Theodosian Code indeed attests to a shift towards more rural commercial activities.²³⁴

²³¹ Andreau (1999: 32), seeing the causes in the debasing of coinage and the rise in prices; Cerami, Di Porto, and Petrucci (2004: 115). Petrucci (1998: 223–50) concluded, however, that there is no sign of a deep crisis or near-disappearance.

²³² Silver (2011): they could not calculate the anticipated inflation in their interest rate.

²³³ Or earlier, if one adheres to an earlier transition. Ward-Perkins (2005: 96–100, ‘How was such sophistication achieved?’) does not mention necessary investment capital. It is indeed the case that at La Graufesenque we are dealing with an aggregate of small producers, and perhaps also small exporters, and all these relied on small working capitals. Yet it is equally possible that these, or many of these, relied on loans from bankers as the traders in Puteoli and Pompeii did. In that case the aggregate of all loans might be considerable. And, if we follow this line, it could also explain to a certain extent why by c. AD 300 high-quality production and export declined as Ward-Perkins has described.

²³⁴ Corbier (2005: 328): ‘In the absence of any system of organized public borrowing, the emperors therefore have—even though they are in other respects the wealthiest property owners in the empire—to rely on permanent taxation... to raise the sums required to meet their expenditures.’ Apart from the question of whether it is anachronistic to suggest the solution of organized public borrowing (private borrowing by princes we do not see until the Middle Ages), Corbier does not mention the *publicani* and the credit these must have provided by their contracts. Contracting out was effectively as good as organized public borrowing. As to her suggestion that the emperor’s income might have provided for this: why should he? Any valuation of the public finance system should take account of the ancient economic system that was, as Rathbone set out, based on not spending more than your income minus investments. If the emperors needed more, it was either because the system did not yield all the tax revenues estimated (e.g. because of a poor harvest), or an unexpected expenditure appeared (e.g. a barbarian incursion). Her further observations about coinage and the fiduciary value of this are of course valuable for this subject.

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Market Regulation and Transaction Costs in the Roman Empire

Elio Lo Cascio

Economic historians of Rome have recently inferred from a variety of proxy data that there was significant growth in the Roman Empire, especially in its core areas, following the conquest and the unification of the Mediterranean world: a significant growth, within the limits of a traditional albeit mature agrarian economy that relied on animal power, supplemented by a small contribution from water and wind.¹

This economic growth was primarily ‘extensive’—that is, what we can call the ‘GDP’ of the Roman Empire increased along with its population until the epoch-making event of the so-called Antonine Plague in the sixties of the second century AD. But it is also possible that the Roman Empire experienced ‘intensive growth’: a growth of per capita income, brought about chiefly by the enlargement of the cultivated areas and by agricultural intensification, but also by the dissemination of some new technologies in agriculture and in mining—the most notable case being the diffusion of the water mill, which is now revealed by the archaeological evidence.²

Several estimates of the GDP of the Roman Empire have been proposed in recent years (by Goldsmith, Hopkins, and Temin, and more recently by Maddison, Scheidel, and Friesen and Lo Cascio and Malanima).³ These rest on a flimsy documentary basis and moreover on estimates (for instance, an estimate of the total population) that remain uncertain or hotly debated: whatever their differences and their individual merits, all of these estimates seem to share the idea that the per capita GDP was not basically different from the per capita GDP in other and better known pre-industrial economies.

¹ See in general Bowman and Wilson (2009) and references there.

² Wilson (2002); Brun (2006); Lo Cascio and Malanima (2008).

³ Goldsmith (1984; 1987); Hopkins (1980; 1995–6); Temin (2006; 2013: ch. 11); Maddison (2007); see also Scheidel and Friesen (2009), Lo Cascio and Malanima (2009; 2014).

Furthermore, all these estimates see the extent of urbanization, which was very high both in terms of the number of urban centres and in terms of their average size, as the most significant proxy for the scale of agricultural surplus and therefore for per capita income. In no other Western society was there a city on the scale of Rome until London at the beginning of the nineteenth century. Moreover, in the Roman Empire there were several other urban centres with populations numbering in the hundreds of thousands (such as Alexandria, Carthage, Antioch, Ephesus) and many more cities with more than 10,000 inhabitants.⁴

If a large consensus on the existence of this growth has emerged among Roman historians, as is shown, for instance, by the new *Cambridge Economic History of the Greco-Roman World*,⁵ more debated are the scale of this growth and especially the relative weight of its determinants. Most would agree, in any case, that a paramount role was played by the drastic reduction of transaction costs. The unification of the Mediterranean world under Roman rule brought about the suppression of piracy and the resulting increased safety of the seaborne commerce, a better circulation of information, the spread of common metrological systems, the creation of a single monetary area, and the diffusion of common legal rules in what we can call commercial law. All this certainly made the definition, the protection, and the exchange of property rights within the Empire much more secure and therefore less expensive.⁶ To quote a recent paper by Walter Scheidel, on the impact of technological innovation on the scale and productivity of maritime trade in the Roman Mediterranean, in comparison with the impact of other variables: 'Hegemony and subsequent direct rule created uniquely favourable conditions for maritime trade by cutting the cost of predation, transactions, and financing to levels that were lower than in any other period of pre-modern Mediterranean history.'⁷ Incidentally I would observe that this taxonomy of 'trading costs', derived from the conceptualizations of Meir Kohn,⁸ is not entirely convincing. It seems to me more elegant to include the so-called cost of predation among the 'transaction costs'. A different problem is whether it is legitimate to include the cost of transport among transaction costs. If we include it, it seems undeniable that there was a reduction of transport cost during the period of the unification of the Empire, owing partly to the increase in the average size of the *naves onerariae* employed in long-distance commerce, and to a more efficient allocation of space inside them, and partly to the increase in the efficiency of infrastructure such as artificial harbours.⁹

⁴ Lo Cascio (2009b). ⁵ Scheidel, Morris, and Saller (2007).

⁶ See e.g. Lo Cascio (2007).

⁷ Scheidel (2011: 21).

⁸ Kohn (2001).

⁹ On the relative importance of the developments in maritime technology vis-à-vis the impact of institutional factors on the costs of maritime trade, see now some of the contributions in Harris and Iara (2011), especially by Harris, Scheidel, and Wilson.

In any case, in what follows I will concentrate on transaction costs as defined by Douglass North and the New Institutional Economics: 'The costliness of information is the key to the costs of transacting, which consist of the costs of measuring the valuable attributes of what is being exchanged and the cost of protecting rights and policing and enforcing agreements. These measurement and enforcement costs are the sources of social, political, and economic institutions.'¹⁰

I would suggest that the political unification of the Mediterranean under Roman rule and the establishment of the Empire were at the root of the various developments that brought about both economic growth and intensification of trade. I would surmise that the ways in which the Roman imperial state was able to secure its survival, drawing as tax a rather small proportion of the surplus and spending it chiefly on providing law and order and on defence against external threats, were in fact conducive to growth. The existence of a single political entity embracing the whole of the Mediterranean meant this was able to promote the integration of the economy, through the establishment of long-distance trading webs for the exchange of staples: contrary to widely held opinions, one can say that this network was not simply a thin veneer that covered an economy still overwhelmingly based on self-consumption. On the other hand, urban centres, especially the larger ones, played a major role in promoting trade within the Mediterranean and the integration of the economy.

But there is more. It is the contention of this chapter that this state of affairs was not merely the unintended and unexpected result of the unification of the Mediterranean under Roman rule, but also the product of the role that the political organization of Rome purposely undertook in regulating market transactions, by guaranteeing the rights of all parties involved—producers, merchants, and consumers—and by preventing opportunistic behaviour, which could alter the working of the market and the formation of prices in it.¹¹ Some historians of Roman law maintain that there was a conscious and intentional policy of promoting market exchange from at least the Republican age. These scholars interpret in this way the introduction in the age of the imperial expansion of Rome of specific legal remedies such as the *actiones adiecticiae qualitatis*, which are linked to the emergence of the so-called slave manager.¹² This term and the underlying phenomenon implied by it

¹⁰ North (1990: 27).

¹¹ A partially different perspective is adopted by Erdkamp (2005: 258–316), with reference to the grain market. I would not subscribe, for instance, to the statement that 'the authorities and prominent citizens of the Roman world had no particular respect for the market' (p. 258) or that there was 'a paranoid mistrust of the market' (p. 265), whereas I would agree in maintaining that 'governmental regulation of the food market was perceived as a necessity in order to guarantee the proper operation of the market' (p. 263).

¹² See in particular Serrao (1989) and Di Porto (1984a; b).

have raised a lively debate.¹³ I do not want to revisit this debate here; nor do I want to venture into the discussion of a problem that is hotly debated nowadays among Italian students of Roman law—that is, whether it is legitimate to speak of a ‘commercial law’ at Rome or whether the specific role and character of commercial law have their roots in the *ius mercatorum* of the twelfth and thirteenth centuries AD.¹⁴

What seems to me undeniable is that the rules directed to restrain or to punish speculative behaviour would produce the effect of ‘lubricating’ exchanges and of drastically reducing transaction costs. Moreover, they would enforce the ‘rules of the game’ in a free and competitive market. Boudewijn Sirks, who has recently defended the thesis of an active and considered promotion of market exchange as early as the Late Republic, has appropriately pointed out, in reference to the control of markets at Rome, that ‘the over-seeing magistrates, the *aediles*, did not regulate prices’.¹⁵ It seems to me that the evidence I am going to analyse in detail shows two things: that there was a strict regulation of the market and that this regulation did not normally result in regulating or even fixing prices, but rather aimed at guaranteeing that the price in the *forum rerum venalium* would always be the market price, formed through the encounter between supply and demand: a market price conceived as a ‘fair price’.

Moreover, the imperial state could define and enforce the fundamental ‘rules of the game’, in particular exclusive property rights, not only in that extension of Rome that was Italy, but also in the provinces. The spread of the Roman notion (and practice) of private property was fostered by the increase in the number of urban communities with Roman or Latin status. During the Empire, therefore, the *princeps* set the rules of the game first of all at the level of the central and provincial administration, but his action extended, in various ways, to the level of the 2,000 or so towns. Provincial governors and city governments were both called upon to oversee the enforcement of these rules.

I should like to dwell on these imperial rules, which involved city governments. The scope of imperial interventions that could have framed the economic relationships among the private people at the local level was quite large. For instance, the imperial authority intervened to rationalize the territorial distribution of periodic markets and their temporal sequence. More generally, there seems to have been particular care to secure not only the regular supply of foodstuffs to the cities, but also the regular working of the market, the *forum rerum venalium*, in each city, and the formation of prices in it, avoiding speculation. I will take just some examples.

¹³ Manacorda (1985; 1989); Carandini (1988: 269 ff.); see also, e.g. Aubert (1994).

¹⁴ Cerami in Cerami, Di Porto, and Petrucci (2004: ch. I); Aubert (2015); and see now Sirks, Chapter 3, this volume.

¹⁵ Sirks (2002: 135).

In the *lex Flavia*, the municipal law given by the Emperor Domitian to the communities of Spain, by then of Latin status, one finds (ch. 75) the following provision: *Ne quis in eo municipio quid coemito supprimito neve coito conuenito societatemue facito quo quit carius ueneat quoue|quit ne ueneat setiusue ueneat* ('no one is to buy [*coemito*] or hoard [*supprimito*] anything or join with another or agree or enter into a partnership in order that something may be sold too dearly [*carius*] or not be sold or not be sold in sufficient quantity'): this is the translation given recently by Harris; Crawford translates *carius* 'more dearly'; the Italian translation given by Lamberti is along these lines: 'Che nessuno, in codesto municipio, faccia incetta di un bene, lo sottragga (alla vendita), né si riunisca, si accordi o costituisca una società per vendere qualcosa a un prezzo più alto, o per impedire la vendita di un bene o causarne un'offerta inferiore (alla domanda)'.¹⁶ It is worth noticing that Harris, Crawford, and Lamberti understand *setiusue ueneat* as referring explicitly to the law of supply and demand, whereas LeRoux¹⁷ advances a different interpretation: 'ou à le vendre à bas prix', which contemplates a different case, an agreement that we could call 'dumping', an interpretation that appears to be less probable (why does the text not say more explicitly *viliusve ueneat*?). Harris says: 'Sanctions followed (any *municeps* could sue). Local courts, in other words, had the right, in many places in the Roman Empire, to decide what was a fair price. We have no idea how often they used this right or threat of sanctions, but Adam Smith (though he was against hoarding) would hardly have approved'; and Harris observes in a footnote: 'The nearest the central power came to promulgating such rules was to issue sanctions against *dardanarii*, speculators: D. 47.11.6 (Ulpian), 48.19.37 (Paulus). But the aim of these rules seems to have been simply to protect the *annona*.' Lamberti too believes that this chapter of the *lex Irnitana* must be read in the light of what is stated by the fragment of Ulpian's *de officio proconsulis* concerning the *lex Iulia de annona* (D. 48.12.2), whereas more convincingly, it seems to me, Höbenreich sees the rule of the *lex Irnitana* as having a larger scope, since it would not have been limited to just a few goods (such a limitation would be excluded by the *quid* in the text), but it would have referred to 'Handelswaren jedweder Spezies'; the rule would have been directed against 'Mißständen', such as 'Wucherpraktiken', 'Warenknappung', 'Kartellbildungen' (we could say agreements to distort the correct working of the market) and the chapter must be considered in connection with the preceding one, chapter 74, which forbids illegal meetings and associations.¹⁸ Moreover, Ulpian's presentation of the *lex Iulia de annona* only implicitly alludes to the *coemere suppressere*: this unlawful behaviour emerges

¹⁶ Harris (2003: 292) = Harris (2011: 210; cf. 219); Crawford in González and Crawford (1986: 193); Lamberti (1993: 337).

¹⁷ In *AE* 1986: 333.

¹⁸ Höbenreich (1997: 166 ff.).

only later, in the context of the *annona*, as the *crimen* of the *dardanarii*, speculators, and is prosecuted *extra ordinem*.

It is certainly possible that the fundamental aim of the rule of the *lex Flavia* was to guarantee the food supply of the town and no more than that. But, even accepting such a conclusion, the rule would maintain its full value, mainly because the instrument through which it was expected to attain this result consisted precisely in the safeguarding of the unimpeded working of the market. In fact the 'fair price' has appeared already in the *lex Flavia* as the market price. The prohibition is to sell *carius* at a price that cannot be other than the price that is formed in the market: this is the only possible explanation, especially if one accepts the interpretation of *setius ueneat* given by Crawford, Harris, and Lamberti. This is the reason why the reference of Harris to Adam Smith does not get it right, in my view: in this case there is no interference of the political organization (the Empire or the individual community) in the functioning of the market, but, on the contrary, there is an intervention that guarantees the correct working of the market: as Crawford and González have put it, 'the chapter merely bans speculation and does not underwrite price control in general'.¹⁹

A similar conclusion must be drawn from another very famous text, the legislation that Hadrian, as *nomothetes*, gave Athens, concerning the production and the export of oil (Oliver 1989: no. 92).²⁰ This piece of legislation imposes on the oil producers and oil traders of Attica the sale to the *elaionai*, the officers who acted as buyers of the oil for retail, of a third of the oil (or for some lands an eighth), leaving the rest available for export. The law included a detailed list of penalties that are to be inflicted on the producers, the traders, and the shippers who will not make the required declaration under oath on the quantity of oil that will be sold outside Athens and on the identity of the foreign buyers, as well as on those who make false declarations. The aim of the law was obviously to prevent the export of all the oil: it was necessary to ensure a sufficient supply for internal consumption. The producers and the dealers who bought the oil from the producers were inclined to export the oil if the price outside Athens was higher. And one can say that, by limiting the quantity of oil to be exported, the full working of the market in determining the commercial flows from one place to another place was impeded. But what seems particularly interesting is that it is stated that the price at which the *elaionai* must buy the oil has to be the current market price at Athens: 'In order that the penalties against transgressors be strictly imposed, the oil shall be delivered to the public treasury at the local market price.' That is, the mechanism that must ensure the effectiveness of the measure does not provide

¹⁹ González and Crawford (1986: 224).

²⁰ See Erdkamp (2005: 273–4).

the fixing of a price, but the observance of the local market price, conceived evidently as a fair price.

The same purpose, to defend consumers, is revealed by another text presumably also of Hadrian: the letter sent to the Athenians and referring to the imports of fish (Oliver 1989: no. 77). It is interesting to observe that the defence of consumers' interests is effected by intervening indirectly in the market, without suppressing its functioning, but trying to affect distribution, by limiting the excessive number of stages through which fish changes hands in the marketing.

The involvement of provincial governors in the suppression of speculative behaviour is shown by a well-known fragment of the eighth book of the *de officio proconsulis* of Ulpian, included in the title *de extraordinariis criminibus* of the *Digest* (D. 47.11.6 pr.-1). This is the fragment in which the criminal behaviour of the so-called *dardanarii* is discussed. The original meaning of the term *dardanarii* is unknown. The various hypotheses advanced so far have been examined in detail in the book on the *annona* by Höbenreich.²¹ I do not think that we have compelling reasons for deciding whether the term derives from Dardanus, or from the Dardanii, a people of the Balkans area allegedly prone, in the aftermath of Trajan's conquest of Dacia, to the abusive behaviour later punished. The other explanation is that the term has to be connected with the Greek word *danos* in the sense of 'loan' or 'interest' and therefore with the verb *daneizein* (an interpretation that does not seem very convincing, however). I just want to point out that the term *dardanarii* refers to people doing mischievous actions that were quite varied: on the one hand, speculation consisting in *adtentare* and *vexare* the *annona*, by suppressing the *coemptas merces*, or by refusing to sell the *fructus* of one's property; on the other hand, speculation consisting in counterfeiting the *mensurae* and more specifically the *staterae*, as emerges from the other fragment of the *Digest* (a fragment of Paul) in which the obscure *dardanarii* are mentioned (D. 48.19.37), as well as from the latter part of the same fragment of the *de officio proconsulis*. This speaks of the *staterae adulterinae* and recalls Trajan's edict, which extended the penalty established by the *lex Cornelia testamentaria* against those who used them.

This passage, on the genuineness of which there is no doubt, poses several problems of interpretation: whether the meaning of the word *annona* is the same in the two occurrences of the term in the fragment or whether it indicates in the former case the corn supply and in the latter its price; the precise meaning of the verb *coemere* and of the verb *supprimere*; the reason for the reference to *constitutiones* and *mandata*, and why, moreover, Ulpian's text seems to report the wording of a single *mandatum*; how one is to understand

²¹ Höbenreich (1997: 206–32); see also Erdkamp (2005: 263–4).

the gradation of penalties for this *crimen extraordinarium*. Beyond these various issues on which I cannot dwell, it seems to me interesting that the name of *dardanarii* (translated as ‘forestallers’ and ‘regraters’ in Watson’s edition, evidently referring to the definition of prohibited behaviour that appears in the ‘Common Law’) seems to encompass not only the *negotiatores* and the *mercatores*, but also the richest landowners, who do not sell the *fructus* ‘*aequis pretiis*’ and instead hoard them because they expect that the future harvest will be less abundant and therefore that prices will rise. I think it significant that the name or at least the identification of a similar criminal behaviour brings together landowners and merchants, as the state seeks once again to defend consumers, and, in so doing, singles out, quite explicitly this time, the category of the *aequum pretium*, the ‘fair price’, as the price that is formed on the market, when speculative behaviour is absent.

Another important and much studied text (most recently commented on by Anselmo Baroni and by Paul Erdkamp²²) is the very famous edict of Antistius Rusticus, *legatus* of Cappadocia-Galatia in the years of Domitian and directed to Pisidian Antioch. The intervention of the governor was requested by the *duoviri* and the *decuriones* of the colony: they were lamenting that, because of a harsh winter, the price of grain had shot up and they ask that *pleps copiam emendi haberet*. The governor establishes, therefore, that every *colonus* and every *incola* of the town must declare before the *duoviri* within thirty days how much grain he has and in what place and how much he needs for *semen* and for the *cibaria annua familiae suae*: this part must be subtracted, but all the rest must be made available to the *emptores coloniae Antiochensis* (and it is debated whether they are some sort of magistrates, like the *sitonai*, or, as seems more probable, the *Antiochenses* themselves). The time in which or (perhaps better) within which the grain must be sold is set at 1 August (evidently when the produce of the new harvest would have been available: it seems probable that that means that, from the time in which the edict was delivered until 1 August, the grain was available to the *emptores*). But the governor forbids also that the grain be sold at more than 1 *denarius* per *modius*, the ground for this maximum price being the fact that the normal market price at Antiochia before the dearth was 8 or 9 *asses* a *modius* (that is half or a bit more than a half of one *denarius*). Again what is significant is, first, that the governor intervenes by obliging people hoarding their grain to make it available for selling, and, secondly, that the maximum price is conceived as being twice the normal market price. The defence of the consumers has its realistic limits.

The texts examined so far show a specific interest by the authorities for consumers. But there are other texts that show, first, that merchants and producers are also protected, and, second, that the ‘fair price’, conceived as

²² Baroni (2004); Erdkamp (2005: 286–8), and references there.

the market price, is thought to benefit not only consumers. A text of considerable interest, but one that does not seem recently to have received the attention it deserves from this point of view, is a fragment of the third book of *de cognitionibus* of Callistratus, included in the title *de nundinis* of the *Digest* (50.11.2). The fragment refers to a case in which *cultores agrorum* and *piscatores* have been encouraged (presumably by civic magistrates, such as *agoranomoi* and *aediles*) to bring the *utensilia*, that is the products of land and sea, to the town, in order to sell them themselves. Such an action may prove detrimental to the supply of the town *cum avocentur ab opere rustici*, whereas they must *tradere*—that is, they have to sell to merchants—the *merx* immediately where they have brought it and come back to their place and resume their activity. Callistratus quotes the passage of Plato's *Republic*, where the social, and even economic, function of the *emporoi* is underlined. It has been argued that the fragment of the Severan jurist documents the difficulties arising from a price increase owing to a situation of 'monopoly distribution'. According to Valerio Marotta, the civic magistrates

must have been aware that in such a circumstance of monopoly distribution—where few *negotiatores* or *locupletes* controlled the greater part or the whole of grain, wine, oil production—it would have been extremely difficult to impose lower prices. But the remedy, as Callistratus noticed—to impose on the farmers of the *chora* the burden of replacing the *negotiatores* in the transport of foodstuffs from the countryside to the town—could prove even worse than the ill it intended to counter.²³

This seems unconvincing: one can rightly question whether the position taken by the jurist is indicative of a monopoly (there is no trace whatsoever of such a situation in the fragment in question). And yet what is certain is that, in asserting 'the productivity and usefulness of commerce for the *civitates*',²⁴ the fragment shows the will to guarantee the defence of the interests of *negotiatores* and *mercatores*, and specifically of the retailers, who are envisioned as fulfilling an important social and economic function. This view can be considered a significant departure from the traditional contempt towards them, expressed, most clearly, in the famous passage in Cicero's *de officiis* (1.42.150–1).

Even under the changed conditions of the fifth century it is still possible to detect a specific concern on the part of the imperial authorities to defend the interests of merchants (and also of consumers), in this case against the power

²³ Marotta (1992: 289): to the civic magistrates 'non doveva sfuggire come in situazioni di monopolio distributivo—lì dove pochi *negotiatores* o *locupletes* controllassero gran parte o l'intera produzione di grano, vino e olio—riuscisse molto difficile calmierare i prezzi. Ma il rimedio—notava non a torto Callistrato—imporre, cioè, agli agricoltori della *chora* l'onere di sostituirsi ai *negotiatores* nel trasporto dei generi di consumo dal contado alla città, poteva rivelarsi anche peggiore del male che intendeva contrastare'.

²⁴ Marotta (1992: 287).

of the big landowners, as is revealed by a law of Honorius and Theodosius II of 408 or 409 (*CJ* 4. 63. 3): the emperors forbid the noblest and richest (*nobiliores natalibus et honorum luce conspicuos et patrimonio ditiores*) to exercise trade (*mercimonium*) that can be harmful (*perniciosum*) to towns, and they do so with a clear intention *ut inter plebeium et negotiatorem facilius sit emendi vendendique commercium*. Once again, the aim is to curb speculation, which prevents the formation of the market price, conceived evidently as a 'fair price'.

This idea that a fair price is fair precisely because it is the market one, and that only speculative behaviour can alter it, is found in a series of fragments of the *Digest* that refer to the role that the decurions (the members of the local senate) must play in order to ensure the regular supply of foodstuffs to their city. What is interesting in these fragments is that they seem to aim at defending the interests not only of the consumers and the traders, but also, in a sense, of the producers. One of these fragments (*D.* 48.12.3, of Papirius Iustus) refers to a rescript by Marcus and Verus, in which it is affirmed that *minime aequum est decuriones civibus suis frumentum vilius quam annona exigit vendere* ('it is grossly unjust for the decurions to sell grain to their citizens more cheaply than the corn supply requires').²⁵ The jurist adds that the same emperors wrote that *ius non esse ordini cuiusque civitatis pretium grani quod invenitur statuere* ('it is not lawful for the *ordo* [of decurions] of any *civitas* to lay down the price of any grain which is found'). Another fragment (*D.* 50.1.8, of Marcianus) refers also to a rescript of these same emperors, whose content would have been present in other imperial enactments, and on whose basis *non debere cogi decuriones vilius praestare frumentum civibus suis, quam annona exigit* ('decurions were not to be forced to provide corn to their fellow citizens at less than the market price'). In another fragment (*D.* 50.8.7(5), of Paul) it is said that *decuriones pretio viliori frumentum, quod annona temporalis est patriae suae, praestare non sunt cogendi* ('Decurions may not be forced to provide corn at a price cheaper than the price of corn at the time in their *patria*'). Another fragment (*D.* 7.1.27. 3, of Ulpian) can be compared with these passages. In this fragment the jurist says quite explicitly, in the context of a discussion of the *onera* of the *fructuarii*, that *nam solent possessores certam partem fructuum municipio viliori pretio addicere* ('As a matter of fact, occupiers of land generally sell a fixed portion of the fruits of their land to the municipal authorities at a lower price')—but it is not said explicitly in comparison with what price this price is lower. Various interpretations have been offered of these passages. Jean-Michel Carrié has seen in the first fragment 'la défense d'une sorte de libéralisme économique délibéré, exprimant un choix social et impliquant une réflexion élémentaire

²⁵ Trans. Watson.

sur la formation du prix et sur son rôle économique: il est un niveau minimum au dessus duquel les prix doivent se tenir pour stimuler la production agricole'.²⁶ Dardaine and Pavis d'Escurac have reached a similar conclusion.²⁷ Peter Herz has interpreted the same fragment as showing that the decurions would have attempted to resort to dumping in order to rid themselves of their competitors, and the forbidden action would be to fix a price of the grain lower than the market price and to sell it at this lower price.²⁸ But this interpretation must be rejected, in the light of the other passages: what the emperors want to avoid is that the decurions are or feel obliged to sell at a price lower than the market price. Jean Durliat and Evelyn Höbenreich think that the constitution of Marcus and Verus aims at defending the interests of the decurions, who could be obliged by popular pressure to sell below the market price.²⁹ In a period of crisis the emperors felt themselves obliged to defend the local senates from intolerable pressures. (I would add that the ruling of Marcus and Verus would be perfectly understandable in a phase of probable general disruption of the urban supplies, following the spread of the Antonine Plague.)

However these fragments are interpreted, a conclusion seems to emerge: that imperial intervention was certainly aimed at 'regulating' the market, in order to avoid speculative behaviour, but that an additional preoccupation, and one that was suggested by a feeling of equity, was to avoid an artificial lowering of prices. The 'comparative advantage in violence',³⁰ which gives the state the authority to set and the concrete possibility to enforce the 'rules of the game' in market transactions between private economic actors, could therefore add considerably to the efficiency of contracting, by protecting the interests of all the parties involved.

It may not be particularly significant that the imperial interventions quoted in the various texts that have been examined in detail—both those that reveal the attention of the imperial power towards the interests of consumers and those that witness a similar attention towards *negotiatores* and *locupletes*—all fall within the decades ranging from the *divi fratres* (Marcus and Verus) to the Severans. And yet the hypothesis that the timing of these imperial interventions is not coincidental is attractive. Thus, it may be significant that it is only from this period onwards that the *crimen* of the *dardanarii* is legally construed as a *crimen extraordinarium*, subject to a much more severe penalty than that established by the *lex Iulia de annona*. Or it may be significant as well that it is only in these decades that a concern is felt about the ability of the local elites to keep themselves safe. These are the decades in which, in consequence of the wars and above all of the plague spreading all over the regions under Roman

²⁶ Carrié (1975: 1096–7).

²⁷ Dardaine and Pavis d'Escurac (1986: 297–8).

²⁸ Herz (1988: 148–9).

²⁹ Durliat (1990: 295 ff.); Höbenreich (1997: 178 ff.).

³⁰ North (1979: 250).

rule since the mid-160s, the Empire was entering a phase of crisis, and this crisis had its obvious outcome in the financial crisis of the state and of the towns.

I think in any case that a result of the crisis cannot have been a shift towards a 'dirigiste' policy, which would anticipate the economic scenario of Late Antiquity: a more decided tendency towards the pervasiveness of the so-called administered trade.³¹ It seems to me that a free market scenario disappears neither now, nor after the middle decades of the third century, nor after the reorganization of the state in the Tetrarchic age, as is shown by the failure of the attempt of Diocletian to control prices. It must be observed that the importance of the market as the place in which the price is formed through the encounter of supply and demand, as the mechanism that must be regulated but not suppressed, is visible in Late Antiquity, when the intervention of the political organization at the local level is still based on the working of the *forum rerum venalium*. As I pointed out elsewhere, the laws of the Theodosian Code referring to the supply of *caro porcina* to Rome can be explained only if the complex mechanism of *adaeratio* (that is, the commutation of the contribution in kind to a contribution in coin) and *coemptio* (that is, the purchasing of the pigs to be brought to Rome) is based on the continuous gathering of the data on the prices prevailing in the regions of Italy where the *canon suarius*, the contribution in pigs, is exacted.³² The same story is told, for the fourth century, by the declarations delivered every month by the heads of the *koina*, the professional associations of craftsmen and merchants in the Egyptian *poleis*. These declarations concern the current price of the goods, which is the market price, and not an imposed price, since the declarations mostly refer to the preceding month, not the following. The aim of these declarations is debated, but they show, in any case, the persistence of commercial relations that are still based on a competitive market.³³

The same can be said of a later period as well, when the political unity of the Mediterranean is over, with the establishment of the Romano-barbarian kingdoms, which inherited in many respects not only the administrative structures of the Empire, but also relevant features of its economic life. In this context some of the *Variae* of Cassiodorus seem to be of paramount importance. They show that the economic life is still based on the working of a competitive market, and that even the state, in order to collect the contributions in kind it asks for, has to take into account the continued existence in the individual towns and regions of a *forum rerum venalium*. One letter is particularly instructive in this context, occasioned by a dearth of *victualia* that occurred in the Gaulish provinces of the Kingdom (*Var.* 4.5). Theoderic writes to the *comes* Amabilis in order to resolve this situation: the *navicularii* of Campania, Lucania, and Tuscia (that is, the Tyrrhenian regions) have to

³¹ Lo Cascio (2009a: 273–85).

³² Lo Cascio (2006: 327 ff.; 2009a: 281 ff.).

³³ Lo Cascio (2009a: 259–72); see also Bagnall (2014).

employ their ships to convoy the *victuales species* only to the Gaulish provinces and not elsewhere. It is interesting that the king's intervention does not affect the prices at which they have to sell these *victuales species*: it is even conceded that the *negotiatores* have the liberty to sell them at the market prices (*habitori licentiam distrahendi sic ut inter emptorem venditoremque convenerit*) and this behaviour is accepted and even justified, because that will be an incentive to the *negotiatores* for carrying and marketing the *victualia* (*Grande commodum est cum indigentibus pacisci: quando fames totum solet contemnere, ut suam necessitatem potest explere. Nam cum ambitioni suae serviat, prope modum donare videtur, qui vendit rogatus. Ad saturatos cum mercibus ire certamen est: suo autem pretium poscit arbitrio, qui victualia potest ferre ieiunis*). Even more interesting is the way in which Cassiodorus, writing on behalf of Theoderic, describes in general terms the function of *negotiatio* where and when there is a *caritas*: *In Gallicana igitur regione victualium cognovimus caritatem, ad quam negotiatio semper prompta festinat, ut empti largius angustiore pretio distrahantur*. Mommsen has, without justification, in my view, against the unanimous reading of the manuscripts, inverted the order of the words: *ut empti angustiore pretio largius distrahantur*; and Traube (followed by the *TLL*) has interpreted *angustiore pretio* in a very peculiar way, as the *pretium quod pauci persolvere possunt*.³⁴ But what Cassiodorus means is that *negotiatio* can better solve the *caritas*, since what has been bought in greater quantity (*largius*) is inevitably sold at a lower price (*angustiore pretio*). Again, the whole letter testifies that the mechanisms at work in the economy of the Ostrogothic Kingdom were not different in essence from those of the Early Empire.

It is normally said by the followers of the Finleyan orthodoxy, and against the modernizing approach of Rostovtzeff, that the political organizations of the ancient world, and the Roman Empire among them, did not have any conception of 'economic policy': no policy of *laissez-faire* in the Early Empire and no policy of conscious 'dirigisme' from the Severan age onwards. Moreover, the opponents of the orthodoxy seem to agree in considering the policy of *laissez-faire* as wholly unconscious. It seems to me that the texts examined in this chapter would suggest a more nuanced position, since they seem to reveal a determined effort to guarantee the working of a competitive market and the formation of a 'fair' price in it: to guarantee competition and to avoid speculation. Seen within the theoretical framework of the New Institutional Economics, with its insistence on the role of institutions and institutional change in affecting the costs of transaction, the way in which the Roman

³⁴ Traube (1894: 572), s.v. *pretium*; see also, apparently following Mommsen in the inversion of the words, but interpreting differently *angustiore pretio*, Barnish (1992: 75). De Salvo (2014) in her commentary does not accept the inversion proposed by Mommsen and seems to interpret the *iunctura* in the same way in which it has been understood here, referring *largius* to the quantity of the *victualia*, but in her translation she seems to consider *ut empti largius angustiore pretio distrahantur* a purpose clause instead of a consecutive clause.

government intervened in setting the rules of the game in the market relations between the economic actors seems to be on the whole perfectly sensible and understandable.

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Financial Institutions and Structures in the Last Century of the Roman Republic

Philip Kay

An alternative title for this chapter could have been ‘What happened to the banks?’ It aims to provide a somewhat speculative answer to the question of why deposit banks seem to be sufficiently numerous in the second century BC to crop up without comment in contemporary literary works and yet, by the time we get to the more extensive works of Cicero, they barely receive a mention. It also seeks to explain why we do not hear of a really large Roman bank evolving during the last century of the Republic.

These are important issues, because the presence or absence of deposit banks would have had a direct bearing on the prospects of activity within the wider Roman economy. In any economy that has deposit banks or functionally similar institutions, the money supply is not limited to the volume of coinage issued by the central authorities. The reason for this is that the deposit and credit mechanisms of a deposit bank produce a ‘money-multiplier’ effect, which will expand the money supply, and such expansion will usually influence the level of economic activity. Deposit banks are therefore normally part of a healthy market ecology. As Peter Temin puts it:

Good financial markets and institutions help people, who have ideas for production, to get resources to implement those ideas. Empirical investigations of recent economic growth have exposed a clear connection between financial institutions and economic growth; without these markets and institutions, the prospects for economic progress appear far more limited.¹

The presence or absence of deposit banks could therefore indicate changes in the level of economic activity at a given time.

¹ Temin (2004: 705); for a fuller account, see Levine (1997).

A lot of work has been done in recent years to show that Roman banking was considerably more sophisticated than previously portrayed.² General opinion would now probably be that there were two broad categories of providers of credit in the last century of the Republic and the first two centuries of the Principate. First, there were institutions that we would recognize as deposit-taking banks. They were termed *argentariae* or *mensae* and were operated by individuals called *argentarii*. These were professional bankers (professionals, in that banking was their main occupation) who accepted deposits, presumably often interest-bearing, from their clients, made payments for these clients, and lent out the pooled money at interest.³ This is the kind of bank that Demosthenes defined in one of his speeches in the fourth century BC as ‘a business operation producing risk-laden revenues from other people’s money’ (ἐργασία προσόδους ἔχουσα ἐπικινδύνους ἀπὸ χρημάτων ἀλλοτρίων).⁴

The second group were individuals, whom Jean Andreau has termed *les financiers de l’aristocratie*, or ‘aristocratic financiers’.⁵ These were men who came from the political and social elite who were lending out their own surplus funds, sometimes large amounts of money, either directly or through intermediaries, to other members of the same social elite, as well as to foreign kings and cities. Although functionally similar to deposit banking, their activity was not a profession; rather, the ‘aristocratic financiers’ were investors deploying their surplus funds in order to achieve a good return on their capital and making loans to help friends or to curry favour with politicians. We shall use the term ‘aristocratic financiers’, in this precise sense of non-professional portfolio investors, throughout this chapter.

The conventional explanation for the apparent scarcity of references to *argentarii* in the historical record after 88 BC is that it is just a result of bias in our main source, Cicero, who, like other members of the Roman elite, preferred to use the ‘aristocratic financiers’ to borrow money. After all (so the argument goes), the vast bulk of the available evidence on financial practice during this period is to be found in Cicero’s letters and speeches. Therefore, this evidence accurately portrays Roman banking practice only to the extent that Cicero’s writings reflect normal financial operations. However, we shall

² Barlow (1978); Andreau (1987; 1999); Temin (2004); Harris (2006); Rathbone and Temin (2008).

³ The interest-bearing deposit (termed *depositum irregulare* or ‘irregular deposit’ by post-classical scholars) is explicitly attested only in late legal sources (e.g. Scaevola, *ad Dig.* 2.14.47.1 and 16.3.28; Ulpianus, *ad Dig.* 16.3.7.2; Papinianus, *ad Dig.* 16.3.24, Paulus, *ad Dig.* 16.3.26.1). During the late Republic, an interest-bearing deposit might well have been regarded legally as a loan to the bank; cf. Plaut. *Pers.* 433–6, quoted on p. 136; Andreau (1999: 40–1); Silver (2011: 306–7). Though there are no quantifiable data, it may be considered unlikely that in practice customers would usually have placed money with bankers for no return, particularly given the risks of depositing money with Roman banks, as discussed at pp. 147–9.

⁴ Dem. 36.11.

⁵ Andreau (1978: 48–50; 1999: 13–15).

argue that the apparent disappearance of the *argentarii* is not merely a result of literary genre dictating evidence and so providing a distorted picture of financial institutions at this time. Rather, it is due to a serious impairment of deposit banks caused by the credit crisis of the 80s BC.

To begin with, though, we should explain in more detail why the distinction between professional deposit-taking bankers and 'aristocratic financiers' (that is, non-professional portfolio investors) is of such economic significance.

The problem of funding economic activity is that savers are not necessarily entrepreneurs. How do you get one group to lend to the other? In essence, it is a question of counter-party risk. When a borrower is a member of his family or a friend, the lender is in a position to evaluate whether or not the borrower is likely to repay the loan. If he is not, it becomes significantly more difficult for the lender to assess his ability to repay. One way round this problem, which is in effect a problem of lack of information ('asymmetric knowledge' in the jargon), is to use a financial intermediary, such as a deposit bank. To quote Temin again:

Financial intermediaries collect funds from people with resources they have saved, pool them together into a single fund, and then make loans from this pooled fund of resources. Individuals lend money to banks by depositing money in them, and the banks then lend their accumulated funds to other individuals. There is no direct connection between the final borrowers and the lenders; they communicate only with the financial intermediary. The presence of this intermediary... solves a lot of the former information problems... The bank solves the problem of finding borrowers and lenders because they each know to go to the bank to place their excess purchasing power or to borrow. It also assumes the risk of not being paid back by a borrower. The lender [depositor] need not worry, unless the bank operates with such bad judgement that it has so many failed loans that it fails itself.⁶

Indeed, the essence of a deposit banker's expertise is the evaluation of the creditworthiness of potential borrowers. In theory, therefore, a financial system, in which deposit banks are operating extensively and successfully, will be more economically efficient than a less sophisticated one, in which most lending is between individuals and so the problem of asymmetric knowledge impairs the lending process.

BANKS IN THE SECOND CENTURY BC

In the second century BC, deposit banks are ubiquitous. Up to thirty-four passages from Plautus and five from Terence concern them.⁷ Furthermore, in

⁶ Temin (2004: 710–11).

⁷ Andreau (1968; 1987: 333).

Plautus' *Curculio*, one of the characters, Lyco, is a deposit banker. Indeed, the plays of Plautus and Terence refer to bankers in such a way as to suggest that their activities were considered both by the playwright and by the audience to be commonplace, at least in an urban context. If they were not part of everyday life, large parts of the *Curculio* and a number of Plautus' and Terence's other plays would have been completely incomprehensible to a Roman audience.

It is clear first of all that bankers conducted their business in the forum and that one could go to them to arrange payments:

*Sequere sis me ergo ad forum,
ut solvam...*⁸

(Follow me to the forum, then, so that I can settle up...)

One would go to a banker to arrange payments because it was with him that money was kept, as the next passage shows:

*Ibo intro atque intus subducam ratiunculam
quantillum argenti mi apud trapezitam siet.*⁹

(I shall go in and reckon up my small account, and see how little money I have with the banker.)

We also see that money is put on deposit with bankers:

*Mirum quin tibi ego crederem, ut idem mihi
facere quod partim faciunt argentarii:
ubi quid credideris, citius extemplo a foro
fugiunt quam ex porta ludis cum emissust lepus.*¹⁰

(Are you surprised that I wouldn't trust you to do the same to me as some bankers do? If you entrust them with anything, they are out of the forum faster than a hare from its cage door at the games.)

Moreover, it appears that money deposited with a banker could be transferred by a written entry in the banker's records, without the movement of cash, by 'writing *nummi*':

*Nunc satagit: adducit [sc. trapezitam] domum etiam ultro et scribit nummos.*¹¹

(Now he settles up: furthermore, he brings [his banker] to the house and 'writes money'.)

We can compare Polybius' account of how, in the late 160s BC, Scipio Aemilianus decided to pay off early the balance of the dowries owed to his adoptive aunts. This totalled fifty talents and was a very large amount of money. This money was on deposit with a banker, a *τραπεζίτης*, who was instructed by Scipio to make what appears to have been a paper transfer of the money

⁸ Plaut. *Pseud.* 1229–30; cf. Plaut. *Capt.* 449; Plaut. *Curc.* 618.

⁹ Plaut. *Capt.* 192–3.

¹⁰ Plaut. *Pers.* 433–6.

¹¹ Plaut. *Asin.* 440; cf. Barlow (1978: 77); Harris (2006: 16).

into the accounts of each of the husbands of the aunts. The two husbands were Tiberius Sempronius Gracchus the Elder and Publius Scipio Nasica Corculum:

ὁ Σκιπίων συνέταξε τῷ τραπεζίτῃ τῶν εἴκοσι καὶ πέντε ταλάντων ἑκατέρᾳ ποιήσασθαι τὴν ἀνταπόδοσιν ἐν τοῖς δέκα μηνσί. τοῦ δὲ Τεβερίου καὶ τοῦ Νασικᾶ Σκιπίωνος...προσπορευομένων πρὸς τὸν τραπεζίτην καὶ πυνθανομένων, εἴ τι συνετέτακτο Σκιπίων αὐτῷ περὶ τῶν χρημάτων, καὶ κείνου κελεύοντος αὐτοὺς κομίζεσθαι καὶ ποιούντος τὴν διαγραφὴν ἑκατέρῳ τῶν εἴκοσι καὶ πέντε ταλάντων, ἀγνοεῖν αὐτὸν ἔφασαν.¹²

(Scipio instructed the banker to make a payment of twenty-five talents to each lady in ten months' time. Tiberius Gracchus and Scipio Nasica... approached the banker to ascertain whether Scipio Aemilianus had arranged with him about the money; and, when the banker insisted that they should accept the money and made out a transfer [διαγραφὴν] of twenty-five talents for each of them, they said he was wrong.)

This passage, incidentally, contradicts the orthodox view that Roman bankers did not have much to do with the Roman elite, since both Tiberius Gracchus and Scipio Nasica were senators;¹³ and, in similar vein, there is the curious story, related by the author of *De viris illustribus*, that, in the last third of the second century BC, the future consul of 115 BC, Aemilius Scaurus, considered becoming a banker.¹⁴

To return to Plautus, the characters in his comedies borrow money from bankers. In this passage from the *Epidicus*, Stratippocles is talking to Epidicus:

STR.: *Quid istic? Verba facimus. Huic homini opust quadraginta minis celeriter calidis, danistae quas resolvat, et cito.*

EP.: *Dic modo unde auferre me vis. A quo trapezita peto?*

STR.: *Unde libet. Nam ni ante solem occasum e loculis adferes, meam domum ne inbitas.*¹⁵

(STR.: So what? These are just words. I am a man that quickly needs forty piping hot *mina*, so I can pay a lender, and fast!

EP.: Just tell me where you want me to bring them from. Which bankers shall I ask?

STR.: Wherever you like. Because if you don't bring them from their coffers before sunset, you needn't enter my house.)

¹² Polyb. 31.27.6–7.

¹³ As Rathbone and Temin (2008: 405) say: 'The only senators specifically said anywhere to use a bank are Scipio Aemilianus and the husbands of his aunts. But the state loans made available to senators in AD 33 were provided through banks (Tac. *Ann.* 6.17), and slaves and freedmen of the emperor and of senatorial ladies appear in the Sulpicii documents.'

¹⁴ *De vir. ill.* 72.2.

¹⁵ Plaut. *Epid.* 141–5.

In a passage from the *Curculio*, in which the eponymous character is addressing Lyco the banker, the comparison that he draws between bankers and pimps again shows that the former lend money:

*Vos faenore homines, hi male suadendo et lustris lacerant.*¹⁶

(You mangle men with loans, those pimps do it with solicitation and debauchery.)

There is even evidence of what, in modern parlance, would be called an 'interbank' market. In the same play, the pimp Cappadox is owed money by the banker Lyco, who pretends he does not have any. The latter goes round the other bankers to try and borrow the amount owed:

*Vel ille [sc. Lyco], decem minas dum solvit, omnes mensas transit.*¹⁷

(That Lyco is going round all the banks so he can pay me ten *mina*.)

We know that Greek bankers in the fourth century BC practised both deposit taking and lending;¹⁸ and, since it seems probable that banking practice at Rome developed under Greek influences, it is difficult to imagine that bankers did not fulfil both a deposit and a credit function. Indeed there is evidence for this in Plautus. In the passage just quoted, the fact that Lyco claims not to have any money seems to indicate that he has lent out the funds he has received on deposit. Lyco says at one point:

*Lyco: Beatus videor. Subdixi ratiunculam,
quantum aeris mihi sit quantumque alieni siet.
Dives sum, si non reddo eis quibus debeo.
Si reddo illis quibus debeo, plus alieni est.*¹⁹

(Lyco: I seem to be blessed. I've drawn up a little account to work out how much money would be for me and how much would be debt. I'm rich as long as I don't repay those whom I owe. If I do repay my creditors, there's more debt.)

In this passage, the line *quantum aeris mihi sit quantumque alieni siet* suggests that Lyco is considering his balance sheet of liabilities (deposits) and assets (loans).

In the prologue of the *Casina* we see the same balance sheet implied. While the games are on, bankers do not pursue their debtors, but neither do they, when the games are finished, return the deposits they have taken;²⁰ and, in the

¹⁶ Plaut. *Curc.* 508. ¹⁷ Plaut. *Curc.* 682.

¹⁸ Bogaert (1968: 331–62); cf. Cohen (1992: *passim*).

¹⁹ Plaut. *Curc.* 371–4; cf. Ter. *Phorm.* 923–4; like John Cleese's portrayal of a merchant banker in an episode of *Monty Python's Flying Circus*, not insignificant elements of truth underlie the extreme satire.

²⁰ Plaut. *Cas.* 27–8: *Ratione utuntur, ludis poscunt neminem, | secundum ludos reddunt autem nemini* ('The bankers are looking at their accounts: during the games they make no demands, but nor do they repay anyone after they're over').

Pseudolus, we see a similar accusation that bankers chase up loans but do not return deposits.²¹ All of this implies that bankers are not just acting as custodians of deposits (that is, offering a safe deposit facility) but are utilizing these deposits to provide loans.²²

The clearest reference, though, to the giving of loans and receiving of deposits comes in the prologue of the *Truculentus*:

*Nam nusquam alibi si sunt, circum argentarias
scorta et lenones qui sedent cottidie,
ea nimia est ratio; quippe qui certo scio,
ibi plus scortorum esse iam quam ponderum.
Quos quidem quam ad rem dicam in argentariis
referre habere, nisi pro tabulis, nescio,
ubi aera perscribantur usuraria:
accepta dico, expensa ne qui censeat.*²³

(Because, if they're nowhere else, the whores and pimps that sit round the banks every day make a fair old number. I know for certain that you'll find more whores there than weighing-scales. I've no idea what the point is of having whores and pimps in banks, unless they're being used as account books for recording interest bearing money—I mean deposits received, in case you thought I meant loans made.)

Here there is a clear reference to interest-bearing money (*aera usuraria*) being recorded in a banker's *tabulae* as both assets (*expensa*—loans) and liabilities (*accepta*—deposits).

Plautus, then, gives compelling evidence at the beginning of the second century BC for the activities of deposit bankers at Rome. Moreover, he portrays them as part of the fabric of everyday Roman society.

Confirmation that the bankers that appear in the plays of Plautus and Terence are not merely a literary conceit is provided by epigraphic evidence from the Greek island of Delos, which, by the end of the second century BC, had developed into a major entrepôt between Italy and the eastern Mediterranean.²⁴ A number of Delian inscriptions from this period mention bankers from the Italian mainland as being present on the island. The earliest known Italian *τραπεζίτης* ('banker') on Delos is Marcus Minatius Sexti f. He gave the comparatively large sum of 7,000 drachmas to a *collegium* of merchants, ship captains, and warehousemen, the Poseidonistai of Berytos, in about 152 BC and in return (and among other honours) had a statue and a crown dedicated to him.²⁵ After him came the Gerillani. Six Gerillani are attested on Delos, at least two of whom were bankers. In an inscription from about 100 BC, the merchants of the island, in honouring Maraius Gerillanus in a

²¹ Plaut. *Pseud.* 296–8.

²³ Plaut. *Truc.* 66–73.

²² Cf. Plaut. *Aul.* 530; Andreau (1987: 550–1, 583–8).

²⁴ Rauh (1993).

²⁵ *IDélos* 1520; Bogaert (1968: 187–8).

dedication to Apollo, Artemis, and Leto, refer to him as a *τραπεζίτης* ('banker').²⁶ The Gerillanus family continued to operate its bank into the 80s, with a Maraius Gerillanus—perhaps the son of the earlier Maraius, perhaps the earlier Maraius himself—being honoured with two dedications, one set up by all the inhabitants of the island, including the merchants and ship captains, the other by the businessmen alone: [οἱ ἐν Δήλῳ πραγματε]νόμηναι.²⁷ Our knowledge of the financial affairs of the Aufidii derives principally from an inscription erected in honour of an Aufidius Bassus on Tenos in the 70s or 60s BC, which describes in detail the financial services of the Aufidii to the island's government.²⁸ Ten Aufidii are attested on Delos, two of them definitely bankers. L. Aufidius was honoured by two inscriptions erected in the 80s, one set up by his freedmen, the other by the merchants and ship captains of the island.²⁹

BANKS IN THE FIRST CENTURY BC AND THE FIRST CENTURY AD

If we skip forward to the first and second centuries AD, there is again considerable epigraphical, archival, and literary evidence for the existence of deposit banks. Inscriptions from this period attest forty-seven *argentarii* and *coactores* and twelve *nummularii* in Rome and seventeen *argentarii* and *coactores* and ten *nummularii* in the towns of Italy.³⁰ Borrowing from banks reached down to the level of the 'small shippers and petty businessmen who appear in the tablets of the Sulpicii'.³¹ Both these and the Iucundus tablets are best interpreted as small parts of the records of banking firms.³² Much of the Sulpicii archive, for example, is to do with lending and borrowing. Thus the Sulpicii borrowed the not insubstantial sum of HS 94,000 (about 4 talents) for just over a month to finance smaller short-term loans.³³ There are also a number of references to bankers in literary texts. For example, Tacitus recounts that, when Tiberius decided to rescue the credit market in AD 33, he did so by

²⁶ *IDélos* 1725. ²⁷ *IDélos* 1726, 1727.

²⁸ *IG XII*. 860. ²⁹ *IDélos* 1728, 1729.

³⁰ Andreau (1987: 315); Rathbone and Temin (2008: 404–5, 406–7) suggest that all the 400 or so towns of Italy had at least one bank, and many (a hundred or more?) had several. They believe that it is unlikely that there were fewer than a thousand banks in first-century AD Rome and Italy.

³¹ Rathbone and Temin (2008: 384).

³² Andreau (1999: 35); Rathbone and Temin (2008: 399).

³³ *TPSulp.* 69; Rathbone and Temin (2008: 398); cf. Jones (2006: 65); also p. 134, n. 3. Verboven (2003b) doubts whether any evidence for deposits can be inferred from this archive.

providing HS 100 million of loans through the *mensae*, 'the banks'.³⁴ There are several passages from the *Digest* that mention banks or bankers.³⁵

But in the middle of the first century BC the picture is very different. Despite numerous references to financial matters, the voluminous Ciceronian corpus contains only a handful of references to *argentarii*, and these are mostly in Cicero's earlier speeches, which refer back to the 70s and 80s BC. Thus, in the 70s, Verres executed a banker named Herennius, who lived in Leptis in North Africa. More than a hundred Roman citizens appealed to Verres on Herennius' behalf;³⁶ and, later in the same speech, Cicero mentions another banker, Luceius, who was operating in Rhegium.³⁷ Pythius, who ran a bank at Syracuse, was the central figure in an anecdote in Cicero's *De officiis*,³⁸ and Cicero mentions two bankers in his *Pro Caecina*, written in 69 BC, but again referring back to earlier events. The first is M. Fulcinius, one of the leading men of Tarquinii, who ran a 'not ignoble' bank in Rome (and who will be discussed in more detail later);³⁹ and Sextus Clodius Phormio, a hostile witness for the plaintiff and therefore a disreputable character.⁴⁰ Clodius participated in auctions at Rome during the 80s.⁴¹ Finally, and in the context of the same decade, Cicero mentions two financiers in the *Pro Quinctio*: C. Quinctius owed money to a P. Scapula, who may perhaps have been a banker, but is not explicitly called one (he may just have been an individual who had lent money to Quinctius).⁴² The second is a certain Sextius who, though again not explicitly called a banker by Cicero, looks as if he might well have been one, because Cicero refers to a meeting taking place 'at the counter of Sextius'.⁴³

That is the sum total of references to *argentarii* in Cicero's speeches and philosophical works. Even more surprisingly, however, there is not a single explicit allusion to an *argentarius* in any of Cicero's correspondence, despite

³⁴ Tac. *Ann.* 6.17.3: *tulit opem Caesar disposito per mensas milies sestertio*. The precise mechanism of making these payments is unclear. Dio Cass. 58.21 claims the emperor 'gave the money to the public treasury' (τῷ δημοσίῳ ἔδωκεν) so that it would be lent without interest to those who needed it 'by men of the senate' (ὑπ' ἀνδρῶν βουλευτῶν). Andreau (1987: 461–3) believes that the *mensae* mentioned by Tacitus were 'bureaux de paiement', established for the occasion, rather than private banks. One possible way to reconcile these two seemingly conflicting passages is to assume that the money was remitted from the treasury to the private banks from where it was paid out to debtors under guidance from a senator. Other literary references to Roman banks are given by Andreau (1987: 65, n. 17).

³⁵ References in Andreau (1987: 66, n. 18).

³⁶ Cic. *II Verr.* 5.155.

³⁷ Cic. *II Verr.* 5.165.

³⁸ Cic. *Off.* 3.58.

³⁹ Cic. *Caecin.* 10–1: *Romae argentariam non ignobilem fecit*.

⁴⁰ Cic. *Caecin.* 27: *argentarius Sex. Clodius cui cognomen est Phormio, nec minus niger nec minus confidens quam ille Terentianus est Phormio* ('Sextus Clodius, a banker, whose surname is Phormio, a man no less black and no less confident than that Phormio in Terence').

⁴¹ Cic. *Caecin.* 6, 27.

⁴² Cic. *Quinct.* 17: *cum pecuniam C. Quinctius P. Scapulae debuisset*.

⁴³ Cic. *Quinct.* 25: *ad tabulam Sextiam*.

the fact that he was heavily in debt for much of the period that his letters cover. Instead there are numerous references to credit being provided by members of the Roman elite, or, to use Andreau's term, by 'aristocratic financiers'. For example, in 62 BC, Cicero was desperately in need of money to pay for a house on the Palatine. He had tried to obtain funds from Gaius Antonius, the governor of Macedonia;⁴⁴ but, at the beginning of 61, he wrote to his friend Atticus to say that things were moving much too slowly and that it was imperative that he borrowed. He goes on:

*Opinor ad Considium, Axium, Selicium confugiendum est. Nam a Caecilio propinqui minore centesimis nummum movere non possunt.*⁴⁵

(I think that I shall have to throw myself on the mercy of Considius, Axius and Selicius. For from Caecilius not even his associates can extract money at less than one per cent [per month].)

Andreau has shown that all these individuals were members of the Roman social and political elite.⁴⁶ Indeed, I. Shatzman is able to list twenty-five senators from the late Republic who are known from literary evidence to have engaged in lending money.⁴⁷ By AD 33, according to Tacitus, the whole senate was involved in this activity.⁴⁸ But individual members of the Roman elite did not lend only to their fellow-citizens. They also advanced money to kings and cities in the Greek East. In 88 BC, we can detect the first sign of this new development: Nicomedes III of Bithynia, who agreed to pay Marcus Aquillius for restoring him to the throne, also borrowed money from some of Aquillius' companions.⁴⁹ Appian's language and the tone of his story suggest that these companions were Aquillius' legates. By the middle of the first century, Marcus Brutus was lending money to Ariobarzanes, the king of Cappadocia, and also to the Cypriot city of Salamis.⁵⁰ Pompey had also lent money to Ariobarzanes, and the interest alone ran to 400 talents per annum.⁵¹ King Ptolemy Auletes owed large amounts of money to various Romans, including C. Rabirius Postumus.⁵²

As F. Heichelheim, C. T. Barlow, and, most recently, William Harris have argued, this system of aristocratic lending was made more efficient by a legal procedure known as *delegatio debitoris*, under which a *nomen*, in the sense of 'an outstanding loan', could be used as a way of paying for an item.⁵³ Harris believes, for example, that a common method of paying for large property

⁴⁴ Cic. *Fam.* 5.5. ⁴⁵ Cic. *Att.* 1.12.1.

⁴⁶ Andreau (2002: 124–7). ⁴⁷ Shatzman (1975: 76).

⁴⁸ Tac. *Ann.* 6.16.3: *neque enim quisquam* [sc. senator] *tali culpa vacuus* ('not one [senator] was free from similar guilt').

⁴⁹ App. *Mith.* 11: *παρὰ τῶν ἐπομένων Ῥωμαίων*.

⁵⁰ Cic. *Att.* 5.21.10–12, 6.1.5–7, 6.2.7–9, 6.3.5.

⁵¹ Cic. *Att.* 6.1.3. ⁵² Cic. *Rab. Post.* 6, 21.

⁵³ Heichelheim (1938: 554–7); Barlow (1978: 155–68); Harris (2006: 8–9, 15).

purchases in the late Republic was by delivering *nomina*, which he interprets to be debts owed to the purchaser of the property by a third party. In addition, there is some limited evidence, from the 40s BC, that there was a secondary market in such *nomina*. Thus Cicero considered selling a debt, when he was anxious to buy a property:

*Si enim Faberianum [sc. nomen] venderem, explicare vel repraesentatione non dubitarem de Silianis, si modo adduceretur ut venderet. Si venalis non haberet, transirem ad Drusum vel tanti quanti Egnatius illum velle tibi dixit.*⁵⁴

(For if I sold the Faberius debt, I wouldn't hesitate to settle for Silius' place, even on a cash basis, if only he could be induced to sell. If he was not going to sell, I'd turn to Drusus, even at the price that Egnatius told you he is asking.⁵⁵)

Vettienus was willing to buy a debt of Cicero's, although for only half its nominal value:

*Sed tamen ne nihil de re, nomen illud, quod a Caesare, tris habet condiciones, aut emptionem ab hasta (perdere malo, etsi praeter ipsam turpitudinem hoc ipsum puto esse perdere) aut delegationem a mancipe annua die (quis erit cui credam, aut quando iste Metonis annus veniet?) aut Vettieni condicione semissem.*⁵⁶

(However, not to omit business altogether, that debt, assigned to me by Caesar, can be handled in three ways: either a purchase at an auction (I would prefer to lose the money, although, apart from the discredit involved, I think that's what this would amount to), or a transfer by the principal a year hence (whom could I trust and when will that 'Meton's year' arrive?), or a half-payment on Vettienus' terms.⁵⁷)

From passages such as these, in which casual references are made to *nomina*, it appears that transactions of this kind were not considered to be unusual. The creditor examined each *nomen*, which was offered to him, to determine whether it was likely to be repaid.⁵⁸ This suggests that *nomina* were functionally similar to what we would term 'negotiable notes' or 'securitized debt'.

Despite the absence of any explicit references in Cicero's correspondence, it has been argued by some scholars that a handful of passages do in fact refer to *argentarii*. Thus Frank labels an individual called Egnatius as a 'banker', although Cicero does not use the term *argentarius* to describe him.⁵⁹ Cicero merely tells Atticus that 'the money is with Egnatius'.⁶⁰ Similarly, and for no

⁵⁴ Cic. Att. 12.31.2.

⁵⁵ Loeb translation, slightly revised.

⁵⁶ Cic. Att. 12.3.2. For a discussion of this problematic passage, see Shackleton Bailey (1966: 398–9).

⁵⁷ Loeb translation, slightly revised.

⁵⁸ Note Atticus' concern over some *nomina* that Faberius offered to transfer to Cicero in the year 46 BC: Cic. Att. 12.2a.1, 13.32.1, 12.5a; 13.3.1, 13.4.2, 13.33.1–2, 13.4.2. See p. 171.

⁵⁹ Frank (1933a: 350).

⁶⁰ Cic. Att. 11.3.3: *pecunia apud Egnatium est*.

obvious reason, Frank describes Vestorius as a banker.⁶¹ Andreau believes that there is only one individual mentioned in Cicero's correspondence who may have been an *argentarius*, although again he is not so termed by Cicero. This is Vettienus, who appears in eight letters during the period 49 to 44 BC.⁶² Andreau's argument is principally based on the fact that Cicero jokingly calls Vettienus a '*monetalis*', in response to the latter, in similar vein, having referred to Cicero as '*proconsul*'.⁶³ But this reference to the *tresviri monetales*, 'moneys', who were responsible for producing the Roman coinage, need not imply that Vettienus was any more an *argentarius* than he was an 'aristocratic financier'. Cicero presumably calls Vettienus a *monetalis* because the latter is a source of money.

There is a similar ambiguity in a letter written in 60 BC. Cicero has to find a loan to fit out his villas in Tusculum and Pompeii, and he complains that he is 'overwhelmed' by debts that he has taken on 'around the Forum'.⁶⁴ The expression 'around the Forum' (*circumforaneo*) may be an allusion to *argentarii*, but it is just as likely to be to 'aristocratic financiers'. There are references in a number of texts to individuals, involved in the world of finance, meeting at the *Janus medius* and the *Puteal Libonis*, both of which were situated in the Forum.⁶⁵ For example, in the *De officiis*, Cicero says:

*Sed toto hoc de genere, de quaerenda, de collocanda pecunia (vellem etiam de utenda), commodius a quibusdam optimis viris ad Ianum medium sedentibus quam ab ullis philosophis ulla in schola disputatur.*⁶⁶

(But this whole subject of acquiring money, of investing money (I wish I could also include spending money) is more profitably discussed by certain excellent men sitting by the middle Janus, than by any philosophers of any school.⁶⁷)

The 'excellent men sitting by the middle Janus', to whom Cicero refers in this passage, are also said by him to have erected a statue to L. Antonius, calling him the patron of the *Janus medius*.⁶⁸ Both these texts speak of the lending of money, and of the placing-out of loans, but again it is impossible to determine whether the individuals involved in these activities were *argentarii* or 'aristocratic financiers'. Scholiasts, commenting on two passages from Horace that mention the *Janus medius*, consistently speak of *creditores* ('creditors') and

⁶¹ Frank (1933a: 351).

⁶² Andreau (1987: 690–3); Cic. Att. 10.5.3, 10.11.5, 10.13.2, 10.15.4, 12.3.2, 15.13a.1, 15.20.1, 15.13.3.

⁶³ Cic. Att. 10.11.5. ⁶⁴ Cic. Att. 2.1.11.

⁶⁵ The expression *Janus medius* or *Janus* appears in two inscriptions and eight texts (references at Andreau 1987: 707, nn. 32, 34); for possible locations of the *Janus medius*, see Andreau (1987: 707–9).

⁶⁶ Cic. Off. 2.87. ⁶⁷ Loeb translation, slightly revised.

⁶⁸ Cic. Phil. 6.15; cf. 7.16.

faeneratores ('moneylenders').⁶⁹ According to Cicero, *faeneratores* also gathered at the *Puteal Libonis*: in the *Pro Sestio*, Cicero ridiculed his enemy Gabinius, saying that he was 'puffed up with rage against the *Puteal* and the flocks of *faeneratores*'.⁷⁰

This raises the question of whether we should equate the 'aristocratic financiers' (in Andreau's limited sense of men from the political and social elite who were lending out their own surplus funds) with these *faeneratores*.⁷¹ But the word *faenerator* appears to have had a wider meaning than this narrow sense and to be used as a generic term for anyone involved in providing credit.⁷² Thus Cicero, in discussing the attitude of various groups towards Caesar in December 50, says that the *faeneratores*, the *publicani* ('tax collectors'), and the *agricolae* ('farmers') are neutral.⁷³ M. Caelius Rufus, in 48, says that the *faeneratores* approve of Caesar.⁷⁴ The modern assumption is that the term *faenerator* carries negative overtones;⁷⁵ and the verb *fenerari*, as used by Cato in the second century BC, certainly seemed to do so.⁷⁶ Hence the word *faenerator* is often translated as 'usurer'. But, by the middle of the first century BC, this no longer appears to hold true. Indeed Considius, one of the lenders upon whose mercy Cicero thought he might throw himself, appears to have referred to himself as a *faenerator*.⁷⁷

Cicero does not himself use the term *faenerator* to describe Considius, or for that matter Caecilius, Selicius, or Axius.⁷⁸ Cicero also borrowed money through Cluvius of Puteoli and Atticus borrowed through Vestorius, but again

⁶⁹ Ps-Acr. *ad Hor. Epist.* 1.1.52–9: *Duo Iani ante basilicam Pauli steterunt, ubi erant loca faeneratorum*; Ps-Acr. *ad Hor. Sat.* 2.3.18: *Iani statuæ tres erant; ad unam illarum solebant convenire creditores et feneratores*; Porph. *ad Hor. Epist.* 1.1.52–9: *Ad Ianos eos qui sunt in regione basilicæ Pauli, feneratores consistunt*; Porph. *ad Hor. Sat.* 2.3.18: *Quia omnes ad Ianum in basilica consistabant feneratores*.

⁷⁰ Cic. *Sest.* 18: *puteali et faeneratorum gregibus inflatus*.

⁷¹ Andreau (1999: 11) says that, 'even though the word *faenerator* could, in all periods, be applied to anyone who advanced interest-bearing loans, very early on it came to designate particular men who specialised in lending money, or usurers'; cf. too Verboven (2008: 211–18).

⁷² The same is true of the Greek equivalent: *δανειστές*. Thus Caesar, as governor of Spain in 61 BC, dealt with *δανεισται* ('moneylenders') in his province, allowing them two-thirds of their debtors' income (Plut. *Vit. Caes.* 12.1–2).

⁷³ Cic. *Att.* 7.7.5.

⁷⁴ Cic. *Fam.* 8.17.2; Syme (1939: 72–3) calls them 'bankers'.

⁷⁵ e.g. Verboven (2008: 214): 'the word *faenerator* carries very negative connotations and is avoided as much as possible.'

⁷⁶ Cic. *Off.* 2.89: '*Quid fenerari?*' *Tum Cato, 'quid hominem', inquit, 'occidere?'* ('What about lending?' Then Cato replied: 'what about killing a man?').

⁷⁷ Val. Max. 4.8.3: *quantumque in ipso fuit, amaritudinem publicae confusionis privata tranquillitate mitigavit, opportune mirificeque testatus se nummorum suorum, non civilis sanguinis, esse faeneratorem* ('As far as he could, he softened the bitterness of public turmoil by his private composure in opportune and wonderful attestation that he was a *faenerator* of his own money, not of citizens' blood').

⁷⁸ Cic. *Att.* 1.12.1.

he does not call them *faeneratores*.⁷⁹ In fact, Cicero applies the term *faenerator* to only three named individuals: to Scaptius and Mantinius, the agents of Brutus in his 200-talent loan to Salamis;⁸⁰ and to Verres.⁸¹ This, however, is hardly surprising. Atticus advised Cicero on his financial affairs, sometimes managing them directly, and Cicero's correspondence is full of orders and directions to Atticus. It is precisely because Atticus and Cicero both already knew the individuals to whom they were referring that it was unnecessary to use an economic identifier, such as *faenerator*, to describe them.

Various explanations have been offered as to why the *argentarii* largely disappear from the record, only to reappear in the first century AD. As we said at the beginning of this chapter, the conventional one is that deposit banks did not disappear and that this impression is just a result of bias in our main source, Cicero, who, like other members of the Roman elite, preferred to use the 'aristocratic financiers' to borrow money. In other words, the picture that we have of financial institutions is skewed because we do not have a first-century BC Plautus or Terence; nor, for that matter, do we have a second-century BC Cicero. As far as we can tell, however, the role of these 'aristocratic financiers' in providing credit appears to have been a new phenomenon. Only one example of elite borrowing and lending before the first century BC has survived: L. Aurelius Cotta (*tr. pl.* 154 BC) who tried to use the sacrosanctity of his office to evade his *creditores*, but was prevented from doing so by his fellow tribunes.⁸² As we have seen, Polybius mentions senators using a bank in the 160s and we hear that Aemilius Scaurus considered becoming a banker later in the same century.⁸³

Jongman produces a different argument, suggesting that it was precisely because they were so rich that the Roman elite borrowed from each other, the argument being that there was nobody else to turn to but their own kind.⁸⁴ But this begs the question of why there is no record of a really large Roman bank, comparable (*mutatis mutandis*) to that, say, of Pasion at Athens in the fourth century BC, to which they could have turned.⁸⁵

Howego turns the question round and suggests that one of the reasons why banks failed to develop into major financial institutions, facilitating and stimulating economic growth, is that they tended not to be used by the elite.⁸⁶

⁷⁹ Cic. *Att.* 6.2.3.

⁸⁰ Cic. *Att.* 5.21.12, 6.1.5; the elite probably used intermediaries or brokers (*intercessores*, *proxenitae*) such as Scaptius and Mantinius to disguise their involvement in loans. Rathbone and Temin (2008: 389) believe that these specialist brokers formed 'the core of the group whom the Romans called *faeneratores* ("usurers")'. Broking was probably the main function of the elusive men of the middle Janus'.

⁸¹ Cic. *II Verr.* 2.170, 186–91.

⁸² Val. Max. 6.5.4; Lucil. 440–2.

⁸³ Polyb. 31.27.6–7; *De vir. ill.* 72.2.

⁸⁴ Jongman (2003: 196).

⁸⁵ e.g. Dem. 36.5–6.

⁸⁶ Howego (1992: 29); cf. Rauh (1989: 70).

Harris, on the other hand, has suggested that the spread of the system of easily transferred debts, in other words the system of *delegatio debitoris*, meant that professional bankers actually lost some of their importance.⁸⁷

There may be elements of truth in some or all of these views. However, we still have to explain the apparent ubiquity of banks in the second century BC, as well as the fact that, during this period, members of the elite, the senators whom Polybius mentions at 31.27.6–7, clearly used a bank and had fifty talents on deposit with it. Again we should remind ourselves that a financial system that operates principally with deposit banks will, in theory, be more economically efficient than one in which most lending is between individuals. Why did the system of credit provision change and why did banks apparently fail to develop into large financial institutions?

THE PROBLEMS OF THE 80s BC

In fact the economic, legal, and regulatory environment of the second century BC and the early first century BC was one in which we would have expected Roman banks to prosper and to have grown in size.

In second-century BC Rome, increased inflows of bullion from warfare, from mining, and, eventually, from provincial taxation combined with a probable expansion in the availability of credit to produce a massive increase in Rome's money supply. Or, to put it another way, in second-century BC Rome, there was a boom in monetary liquidity. This growth in the supply and availability of money in turn resulted not only in more funding being available for the Roman military, but also in increased economic activity (evidenced by a construction boom at Rome and in other central Italian cities, as well as by a sharp increase in the level of trade).⁸⁸ On top of all this there was the added bonus that there does not appear to have been any concept of taxing the profits of a banking business. This is exactly the economic environment in which Roman banks should have prospered.

The legal and regulatory environment in which Roman banks operated was also extremely liberal and liberating. Roman banks operated under private law, which meant that they could benefit from a legal system that recognized private property, contracts, and enforcement.⁸⁹ But they were not themselves constrained by legislation specific to their industry. As Dominic Rathbone and Peter Temin have pointed out, there are several rulings in the *Digest* that

⁸⁷ Harris (2006: 12).

⁸⁸ Kay (2014).

⁸⁹ Cf. Hitchner (2005: 221): 'as anyone who has participated in a business venture in the high risk rough and tumble of a developing country knows, only the absence of secure rights of property and the rule of law will truly stop investment and participation.'

mention bankers or banking, but no separate chapter on the industry.⁹⁰ Important though they were, there appear to have been only a handful of legal rules specific to banking that had developed by the late second or early first centuries BC. For example, the author of the *Rhetorica ad Herennium*, probably writing in the 80s, states:

*Consuetudine ius est id quod sine lege aequae ac si legitimum sit usitatum est; quod genus, id quod argentario tuleris expensum ab socio eius recte petere possis.*⁹¹

(Legal custom is that which, in the absence of any statute, is by usage endowed with the force of statute law; for example, the money you have deposited with a banker you may rightly seek from his partner.⁹²)

This passage suggests that, in the case of a *societas* between bankers, partners were legally obliged to return a deposit placed with another partner. Other rules dating back to this period of which we know (there may have been others) included provisions that bankers had to make their records available in legal cases, that compensation for reciprocal debts between a banker and his client was automatic, and that the informal promise by a banker to pay his client's debts (*receptum argentarii*) was legally enforceable.⁹³

The legal framework surrounding the activities of bankers may have been expanding, but, most importantly, banks were not regulated or licensed by the state; nor was there any self-regulation. There was no central bank. The officials in charge of the *aerarium*, the Roman state treasury, were annually elected magistrates, a pair of quaestors, but, as Williams has emphasized, they had no executive authority to form policies or to take decisions.⁹⁴ The quaestors' primary responsibilities were to act as curators of the bullion, cash, and documents stored in the *aerarium*, and to make payments, when required to do so by law or by *senatus consultum*. Decisions on levels of coin production were taken by the senate, but there does not appear to have been any day-to-day regulation or oversight of the banks. Ad hoc decisions might be taken, for example, to cap usurious rates of interest, but these were few and far between; and, in any case, they tended, eventually, to be honoured more in the breach than in the observance.⁹⁵ Even today, nobody thinks about the banking system until there is a problem.

Banks were therefore pretty well unrestricted in their activities. As Rathbone and Temin say: 'A banker was what a banker did, and a Roman chose to deal with a bank, as one legal opinion puts it "going on its public reputation"

⁹⁰ Rathbone and Temin (2008: 392). ⁹¹ *Rhet. Her.* 2.13.19.

⁹² Trans. Loeb 93. ⁹³ Andreau (1987: 597–602, 615–31); Petrucci (2002).

⁹⁴ Williams (1998: 174). The number of quaestors was increased to twenty by Sulla, but most of these went to the provinces rather than to the *aerarium* in Rome.

⁹⁵ e.g. Livy, 35.7.2–5; cf. Tac. *Ann.* 6.16.

(*fidem publicam secuti*).⁹⁶ This was fine when things were going well, but would have been disastrous when they went wrong. The lack of regulation meant that there was, in the jargon, a very high level of systemic risk. There was no safety net if a bank went bust. There was no lender of last resort, because the Roman state did not lend.

By contrast, during the 2008 credit crisis, for example, emergency policy responses were consciously arrived at by governments, regulators, and central banks. They included measures such as the full or partial nationalization of certain banks, the encouragement of the mergers of others, and the decision to let banks such as Lehman fail. Government funding was provided, followed by quantitative easing in order to stabilize the money supply, and to try to restimulate battered economies. However imperfectly, our modern system works because there are central banks, regulatory bodies, and finance ministries who are charged with the task of overseeing the financial system.

In Republican Rome none of this existed, and the shortcomings of the system were highlighted in 88 BC. In that year, a major financial crisis occurred because of the joint effects of the Social and Mithradatic Wars. It deepened when Sulla marched on Rome and a civil war began.

The first tangible evidence for problems comes in 89 BC, when the Social War had hurt the economy and made debts hard to repay.⁹⁷ Livy's epitomator says that the citizen body was burdened by debt; and Appian says that debtors delayed payments 'on the plea of war and civil commotion'. Sempronius Asellio, the urban praetor, began to allow actions to be taken by debtors against their creditors, according to an obsolete law forbidding interest-bearing loans. He was lynched by a mob of angry creditors and killed.⁹⁸

In the following year, further problems were added to the dislocations caused by the Social War. In 88 BC, Mithradates VI of Pontus invaded the province of Asia. In the *De imperio Cnaei Pompeii*, Cicero describes how this resulted, first, in the loss of the *pecuniae Asiaticae* (monies invested in and lent into Asia); secondly, in the collapse of *fides* (credit) at Rome; and, thirdly, in the interruption of repayments of loans at Rome, *solutione impedita*:

Nam tum, cum in Asia res magnas permulti amiserant, scimus Romae, solutione impedita, fidem concidisse. Non enim possunt una in civitate multi rem ac fortunas amittere, ut non plures secum in eandem trahant calamitatem. A quo periculo

⁹⁶ Rathbone and Temin (2008: 394); Ulpianus, *ad Dig.* 42.5.24.2.

⁹⁷ Williams (1998: 177) correctly emphasizes the intimate connection between 'the public *inopia* of the 80s and the profound crisis in private credit', which have 'generally been treated as discrete phenomena'.

⁹⁸ Livy, *Per.* 74: *Cum aere alieno pressa esset ciuitas, A. Sempronius Asellio praetor, quoniam secundum debitores ius dicebat, ab his qui faenerabant in foro occisus est* ('When the state was crushed by debt, the praetor, A. Sempronius Asellio, was killed in the Forum by those who lent money, because he was allowing actions by debtors'); cf. App. *B. Civ.* 1.54, who says that the *δανεισταί* ('moneylenders') killed him, and Val. Max. 9.7.4, who says that it was the *creditores*.

*prohibete rem publicam, et mihi credite, id quod ipsi videtis: haec fides atque haec ratio pecuniarum, quae Romae, quae in foro versatur, implicata est cum illis pecuniis Asiaticis et cohaeret; ruere illa non possunt, ut haec non eodem labefacta motu concidant.*⁹⁹

(For then, when very many people lost large fortunes in Asia, we know that there was a collapse of credit [*fides*] at Rome, because repayments were interrupted [*solutione impedita*]. It is indeed impossible for many individuals in a single state to lose their property and fortunes without involving still greater numbers in their ruin. Defend the Republic from this danger; and believe me when I tell you—what you see for yourselves—that this credit and this system of monies, which operates at Rome in the Forum, is bound up in, and is linked with, those Asian monies [*pecuniae Asiaticae*]; the loss of the one inevitably undermines the other and causes its collapse.¹⁰⁰)

This passage of Cicero is remarkable in its contemporary tone. Substitute ‘US sub-prime’ for ‘the Asian monies’ and the ‘UK banking system’ for ‘the system of monies which operates at Rome in the Forum’ and it could have been written about the credit crisis of 2008, which was caused by the increasing default rates on high-risk US mortgage loans, provided to people on low or no salaries; mortgage loans that had been repackaged and sold on to banks and investors around the world. Indeed, what is so striking about Cicero’s text is that it clearly talks about linked financial markets around the Roman world. The financial capital represented by the *pecuniae Asiaticae* is linked explicitly to the Forum in Rome. In the paragraphs immediately preceding the passage just quoted, Cicero talks of the destruction of the financial capital that had been directly invested in the province of Asia by *publicani* and by Roman businessmen. So our text does not seem to refer to them. At the beginning of our passage, Cicero says that ‘there was a collapse of credit [*fides*] at Rome, because repayments were interrupted’, and so the implication must be that what Cicero is referring to here are the monetary resources of affluent Romans that have also been channelled into Asia in the form of loans. It is no coincidence that the historian Appian says that during the massacres of Italians and Romans in Asia in 88 BC, Mithradates made *δανεισταί* (‘money-lenders’) a special target.¹⁰¹

The response of officials of the Roman state to this growing crisis was poor. Instead of providing assistance to support the banks and to encourage them to lend at a time of extreme financial distress, they successively took several measures that made the situation worse.

In 88 BC, the tribune Sulpicius Rufus carried a *plebiscitum* limiting each senator’s debts to a mere 2,000 *denarii*.¹⁰² The content and the aim of the law are uncertain and in any case it was declared invalid upon the death of

⁹⁹ Cic. *De imp. Cn. Pomp.* 19.

¹⁰⁰ Loeb translation, slightly revised.

¹⁰¹ App. *Mith.* 22.

¹⁰² Plut. *Vit. Sull.* 8.

Sulpicius in the same year. But, given its timing during a period of financial crisis, it is likely to have been an attempt to prevent senators becoming financially overextended, by restricting the amount of money they could borrow. Later in the same year, 88 BC, a further law concerning debt was introduced by the consuls Sulla and Pompeius Rufus. The only source for the *lex Cornelia Pompeia* is a fragment of Festus, which suggests that the law perhaps allowed some kind of partial repayment of loans by debtors, as well as capping the rate of interest that could be charged by creditors.¹⁰³

Two years later, the suffect consul of 86, Valerius Flaccus, carried an even more radical law, the *lex Valeria de aere alieno*, which cut debts by three-quarters.¹⁰⁴ Shortly afterwards, we find the quaestor Fonteius repaying some old debts at one-quarter of their value;¹⁰⁵ and the *lex Valeria* seems to have been behind Cicero's elusive statement in the *Pro Quinctio* that it was not enough to examine the books of account, when settling a debt.¹⁰⁶

All these laws must, of course, have benefited debtors enormously, but equally clearly all of them, and in particular the *lex Valeria*, would have significantly worsened the position of the deposit banks, even if the remission of debt under the latter law had applied also to debts (that is, deposits) owed by bankers to their customers. This is because these banks would have been lending out not just money deposited with them but also at least part of their own capital.

If things were not already bad enough for the deposit bankers, the Sullan proscriptions of the late 80s put another nail in the coffin. Sulla declared

¹⁰³ Festus 516L. The text that we have is as follows: *Unciaria lex appellari coepta est, quam L. Sulla et Q. Pom(pei)us Rufus) tulerunt, qua sanctum est ut debitores decimam partem* ('The law, passed by L. Sulla and Q. Pompeius Rufus, began to be called "the unciarial law", by which it was permitted that debtors... a tenth part'). What exactly is entailed in this fragmentary text is not clear. An *uncia* is 1/12th, and so Barlow (1978: 122) suggests that *faenus unciarum* probably means that 8 1/3% p.a. (1/12th of the principal) was set as the maximum rate of interest in Rome. But 12% p.a. is more commonly assumed by modern scholars to have been the maximum rate (Frank 1933b; Baloglou 2011: 49).

¹⁰⁴ Vell. Pat. 2.23.2: *suffectus Valerius Flaccus, turpissimae legis auctor, qua creditoribus quadrantem solvi iusserat* ('the suffect consul Valerius Flaccus, the author of a very shameful law, by which he had decreed that one-quarter of a debt should be paid to creditors'); cf. Sall. Cat. 33.2: *ac novissime memoria nostra propter magnitudinem aeris alieni volentibus omnibus bonis argentum aere solutum est* ('and not long ago, within our memory, because of the scale of outstanding debt, silver was paid in bronze, with the consent of all good men').

¹⁰⁵ Cic. Font. 1–2.

¹⁰⁶ Cic. Quinct. 17 (81 BC referring to 83 BC): *Cum pecuniam C. Quinctius P. Scapulae debuisset, per te, C. Aquili, decidit P. Quinctius quid liberis eius dissolveret. Hoc eo per te agebatur quod propter aerariam rationem non satis erat in tabulis inspexisse quantum deberetur, nisi ad Castoris quaesisses quantum solveretur* ('Since C. Quinctius owed money to P. Scapula, P. Quinctius [his brother], according to your decision, C. Aquilius, settled how much he had to pay to Scapula's children. The question had to be handled by you, because, owing to financial procedure, it was not enough to have examined the account books for the amount of the debt, unless you made enquiries at the temple of Castor as to how much had to be paid' (Loeb translation, slightly revised)).

certain Roman citizens, who were his political enemies, to be outlaws and confiscated their property.¹⁰⁷

The proscriptions affected bankers in two ways. First, they caused the price of land to fall, which in turn meant that the security available to bankers declined.¹⁰⁸ Secondly, according to Appian, guilt by association could put an individual on the proscription lists, and a loan constituted an association.¹⁰⁹

Making matters worse for the banks in the 80s was a number of problems that seem to have affected the Roman coinage. Although, as we have seen, the Roman money supply at this time consisted of bank deposits and coinage in circulation, and not just of coinage alone, the efficient working of Rome's banking system would still have depended on a sufficient supply of *denarii* in order to function properly. In a hard-money economy, one in which little or no token money circulates, the availability of deposits in the form of coin directly influences the ability of banks to operate and to make loans. As we describe in what follows, debasement, shrinkage in state revenues, the melting-down of temple treasures, and the Gratidianus episode suggest that there were problems with the Roman coinage, despite a significant increase in minting.

Although coin issuance at Rome in the 90s was not large, and although there had been a slight drop in the silver standard of the coinage in the years immediately preceding the Social War, it does not look as though these developments reflected any problems at the *aerarium*.¹¹⁰ Pliny reported the reserve in the *aerarium* for the year 91 BC, as he did for 157 BC and for 49 BC; but in the case of 91, our manuscripts have lost an important line, and as a result we do not know the amount of the gold and silver bullion, but only of the coined silver. This amounts to just over HS 1.6 million or 67 talents, which is not an enormous sum.¹¹¹ But, as Williams comments, the subsequent sharp increase in coin production from 90 BC onwards does not suggest a lack of bullion in the treasury at that time.¹¹²

Certainly there was some minor tinkering with the coinage, but none of it had far-reaching significance. In the years immediately preceding the Social War, the *quinarius* had been revived in a debased form, and seems to have taken over from the old *victoriatus*, to which it was made equivalent.¹¹³ The *lex Papiria* (probably of 91/90 BC) lowered the standard of the *as* from uncial to semuncial and authorized new issues of the silver *sestertius*.¹¹⁴ Livius Drusus (probably the tribune of 91 BC) apparently proposed debasing the

¹⁰⁷ Livy, *Per.* 89. ¹⁰⁸ Plut. *Vit. Crass.* 6.6.

¹⁰⁹ App. *B. Civ.* 1.96. ¹¹⁰ Walker (1980: 62–3); Williams (1998: 181).

¹¹¹ Plin. *HN* 33.55; Frank (1933a: 265–71) argues that the *aerarium* was poor in the 90s BC.

¹¹² Williams (1998: 174); see Crawford (1974: 650–1) for some idea of the small size of the issues of the 90s.

¹¹³ Plin. *HN* 33.46; Williams (1998: 181); Crawford (1985: 181–3) believes that the *quinarii* were produced for circulation in Cisalpine Gaul.

¹¹⁴ Plin. *HN* 33.46; Crawford (1985: 183–5).

silver coinage by mixing it with an eighth part of bronze. There is, however, no evidence to suggest that such coins were ever issued by the Roman state, although it did foreshadow the debasement that was to follow.¹¹⁵

The Social War in particular led to a significant increase in the level of coin issuance at Rome, probably because of the large number of troops that had to be paid.¹¹⁶ The Roman monetary response was to produce more coinage in the year 90 BC than in any other single year in the history of the Republic.¹¹⁷ This trend continued in the 80s BC. Verboven calculates that issues of *denarii* from 91 to 80 BC make up, on average, 36 per cent of all the *denarii* minted between 157 and 50 BC, compared to only 32 per cent for all issues of *denarii* minted between 79 and 50 BC. Even after thirty years of shrinkage, the output of the 80s BC still made up more than a third of the coinage in circulation in 50 BC.¹¹⁸ Indeed, the cost of the war was so large that the Roman state had to resort to a limited debasement of the silver coinage. As Chris Howgego says: 'The debasement of the coinage is arguably as good an indicator as we have of the fiscal inadequacy of the Roman empire.'¹¹⁹ Between 89 and 87 BC, the silver fineness of the *denarius* was reduced to a level no higher than 94 per cent.¹²⁰ We can compare an earlier crisis-driven debasement that occurred at the height of the Second Punic War and that reduced the silver fineness down to about 89 per cent.¹²¹

But the steep rise in public expenditure because of increased military spending was not the only fiscal feature of the early 80s BC; state revenues were also shrinking simultaneously. We have already described how the taxes from Asia were lost after Mithradates' invasion in 88; in addition, various taxes within Italy also disappeared because of the Social War:

*an obliti estis, Italico bello amissis ceteris vectigalibus, quantos agri Campani fructibus exercitus alueritis?*¹²²

(Have you forgotten, when all your other taxes were lost in the Italian war, how many armies you fed with the produce of the *ager Campanus*?)

¹¹⁵ Plin. HN 33.46: *Livius Drusus in tribunatu plebei octavam partem aeris argento miscuit* ('Livius Drusus in his tribunate of the plebs mixed an eighth part of bronze into the silver'); Crawford (1985: 190): 'Pliny perhaps misplaced the undoubted debasement of 89–87 or recorded a measure never put into effect.'

¹¹⁶ Brunt (1971: 438) estimates that there were about 150,000 citizens in service at its height, which would have cost about HS 70 million p.a. or approximately 3,000 talents p.a.

¹¹⁷ Crawford (1974: 650–1).

¹¹⁸ Verboven (2003a: 59).

¹¹⁹ Howgego (2009: 292).

¹²⁰ The degree of fineness might have been lower: 'in the last few years it has become clear that the sampling technique used by Walker (1980) meant that his samples contained too much of the enriched part of the coin's surface; other coins for which he found this sort of fineness have turned out to be much less fine, around 80%' (Burnett 1998: 171, n. 29).

¹²¹ Howgego (1995: 112). In a hoard found at Tarentum, the fineness of the *quadrigati* had been reduced to 30%.

¹²² Cic. Leg. agr. 2.80.

Anecdotal literary evidence confirms this picture of financial strain during the decade and suggests that the Roman state had to adopt emergency measures.¹²³ For example, public land was sold off at Rome in 89 BC and again in 81 in order to raise cash.¹²⁴ Extra taxes were imposed both within Italy and abroad.¹²⁵ In 88 BC, unspecified items of public property, perhaps temple treasures or land, were also sold, producing 9,000 pounds of gold to pay for the army that Sulla was about to lead against Mithradates.¹²⁶

The end of the Social War, far from bringing relief, only produced different problems, which meant that the underlying cash-flow problems continued. For, with the enfranchisement of Italy in 88, men who had previously been allied soldiers now had to be paid directly by Rome,¹²⁷ although, to some extent, the demonetization and (presumed) melting-down of the substantial allied coinage by the Romans, after the end of the Social War, would have helped to increase monetary liquidity at Rome.¹²⁸ In 84–80 BC, Sulla even briefly introduced a gold coinage, although it was only from 46 BC onwards that gold was minted on a large and regular basis. But, despite this, the general fiscal problem at Rome persisted, and, in 82 BC, the senate decided to melt down gold and silver sacred treasures to make coin.¹²⁹

There are other signs of financial stress at a more micro-level, even if they are difficult to interpret. According to Cicero, the value of money was ‘tossed about’ so much that no one knew what he had. In 86 or 85 BC, the praetors and the tribunes of the plebs tried to resolve the problem by issuing an edict. Marius Gratidianus, who stole all the credit for the edict from his colleagues, received many honours from a grateful people:

*Ne noster quidem Gratidianus officio viri boni functus est tum, cum praetor esset, collegiumque praetorium tribuni plebi adhibuissent, ut res nummaria de communi sententia constitueretur; iactabatur enim temporibus illis nummus sic, ut nemo posset scire, quid haberet. Conscripserunt communiter edictum cum poena atque iudicio constitueruntque ut omnes simul in rostra post meridiem escenderent. Et ceteri quidem alius alio, Marius ab subselliis in rostra recta idque, quod communiter compositum fuerat, solus edixit. Et ea res, si quaeris, ei magno honori fuit; omnibus vicis statuae, ad eas tus, cerei. Quid multa? Nemo umquam multitudini fuit carior.*¹³⁰

(Even our Gratidianus did not perform the duty of a good man. When he was a praetor, the tribunes of the plebs summoned the college of praetors in order to decide a monetary matter by joint resolution; for at that time money was being tossed about so much that no one could tell what he had. Together they wrote an

¹²³ The best account is Crawford (1974: 637–8).

¹²⁴ 89 BC: Oros. 5.18.26–7; Plut. Vit. Pomp. 4.1; 81 BC: Cic. Leg. agr. 2.35.

¹²⁵ App. B Civ. 1.102. ¹²⁶ App. Mith. 22; Williams (1998: 175–6).

¹²⁷ Previously allied communities had raised *tributum* locally in order to pay the soldiers that they sent to fight for Rome (Nicolet 1978; Crawford 1985: 187).

¹²⁸ Burnett (1998: 166).

¹²⁹ Val. Max. 7.6.4.

¹³⁰ Cic. Off. 3.80.

edict with the penalty and the judgment and decided that they should all mount the rostra at the same time in the afternoon. But while all the others dispersed, Marius went straight from the benches to the rostra and, on his own, formally announced what had been drafted by all the praetors together. And that matter, if you ask, brought him great honour; in all the neighbourhoods, there were statues of him and, beside them, incense and candles. Why go on? No one was ever dearer to the masses.)

Precisely what Cicero was referring to in this elusive statement is not clear, although the incident and the edict must have been sufficiently familiar to his contemporary audience in the 40s (more than forty years after the event) to require no further explanation. Furthermore, whatever Gratidianus actually did, the result appears to have been the re-establishment of trust in the coinage.¹³¹

Pliny commented that the edict instituted a new way of testing *denarii*, a statement that led Tenney Frank to believe that Gratidianus introduced a new means of testing for officially produced plated *denarii*, authorized by Livius Drusus' law of 91.¹³² Michael Crawford, however, argues that all plated Roman coins are forgeries and that none was ever produced by the Roman state;¹³³ and some support for this view comes from Sulla's reorganization of the courts in 81 BC. Under the *lex Cornelia de falsis*, a permanent court was established for cases involving forgeries of all kinds, including counterfeit coins.¹³⁴

It is perhaps easier, therefore, to provide a context for the edict of Gratidianus and its popularity (Cicero's 'no one was ever dearer to the masses') in widespread concern at the debasement of the silver coinage between 89 and 87 BC. Crawford believes that the unofficial exchange rate between bronze and silver coins was fluctuating and that Gratidianus' edict enforced the official 16–1 exchange rate;¹³⁵ and it is entirely credible that lack of confidence over the value of the silver coinage would have manifested itself in concern at the rate of exchange between silver and bronze coins that was offered by shopkeepers and money changers. In fact, the sensitivity of a population to any form of tampering with the exchange rate between silver and bronze coins is shown by a Pergamene inscription of the second century AD.¹³⁶ This preserves an imperial letter (thought to be Hadrianic) concerning alleged profiteering by local money changers who were responsible for exchanging silver *denarii* for local bronze coins at official exchange rates. In the Pergamene example, one additional

¹³¹ Cf. Williams (1998: 181). ¹³² Plin. *HN* 33.132, cf. 34.27; Frank (1933a: 265–71).

¹³³ Crawford (1974: 560–2).

¹³⁴ Paulus, *Sent.* 5.25.1, 1A=D. 48.10.19; D. 48.10.8–9; Cic. *II Verr.* 2.1.108.

¹³⁵ Crawford (1985: 189–93); he further argues that *aeraria ratio*, mentioned at Cic. *Quinct.* 17, should be taken to refer to the exchange rate between bronze and silver. This is wrong. It must refer to the measures for debt relief introduced under the *lex Valeria* (see p. 151).

¹³⁶ OGIS 484; Macro (1976); I am grateful to Professor Howgego for pointing out the relevance of this inscription.

bronze as of profit taken, only occasionally, by the local money changers was sufficient to instigate an appeal by the local populace to the Roman emperor.

Thus far, in considering the problems with coinage in the 80s BC and their impact on the banks, we have focused on the supply of *denarii* minted in Rome for use in Italy. As we mentioned earlier, a sufficient supply of *denarii* was crucial for the proper functioning of banks operating in Italy. But matters were rather more complicated for Italian banks operating in other territories controlled by the Romans. For, at this period, the Roman *denarius* was the dominant coinage only in Italy, Sicily, Gallia Narbonensis, and probably Africa, where the Carthaginian coinage is presumed to have disappeared after 146 BC to be replaced by Roman *denarii*.¹³⁷ Elsewhere in Rome's empire, there existed a patchwork quilt of coinages. In Spain, the Roman *denarius* began to become common only during the late second century BC. Before that, the so-called Iberian *denarius* (a silver coin of the weight of a Roman *denarius* with silver and bronze fractional pieces) constituted a substantial element of the coinage.¹³⁸ In Greece, a bewildering array of local coinages continued to be struck by individual Greek *poleis*, using types that made no reference to Rome (with the exception of some issues from Macedonia in the early 80s BC that have legends partly in Latin).¹³⁹ Of these civic issues, the Athenian 'New Style' tetradrachm was by far the largest, becoming a regional coinage in southern Greece and beyond and continuing to be struck in substantial quantities down to the time of Sulla.¹⁴⁰ Likewise the *denarius* played little, if any, role in Asia Minor before 50 BC, and there is no hoard evidence of any significance before the 40s.¹⁴¹ Here the cistophoric coinage, started in the 170s or 160s by the Pergamene king, Eumenes II, continued to be struck after Attalus III had bequeathed his kingdom to Rome in 133; and the creation of the Roman province of Asia brought absolutely no change to the currency of the region.¹⁴² Indeed, the period 133 to 88 BC may have seen a much greater proportion of silver being struck as *cistophori*, principally at Pergamum and Ephesus, than had been the case in the first fifty years of the coinage's existence.¹⁴³ These civic coinages do not, with the exception of the Athenian tetradrachm, appear to have travelled to any noticeable extent outside the states to which they belonged, nor do they seem to have been legal tender outside the borders of the state that minted them. None of them, including the Athenian tetradrachms, ever circulated in Italy, and they were not, in the jargon, fungible with the *denarius*.

¹³⁷ The hoard evidence for Africa is very thin; only eleven hoards known to contain Republican *denarii* have been found (Crawford 1985: app. 42; Burnett 1987: 175, 180–1).

¹³⁸ Ripollès (2005: 82–4).

¹³⁹ Crawford (1985: 197); Warren (1999).

¹⁴⁰ Crawford (1985: 125).

¹⁴¹ Kinns (1987: 112).

¹⁴² The problematic dating of the introduction of the *cistophorus* is most recently discussed in several articles in Thonemann (2013).

¹⁴³ Kinns (1987: 109).

At this time the Romans appear neither to have had a policy of replacing these local coinages nor to have attempted to control the volume of their emission. So, although several different currencies circulated within Rome's empire, Rome's 'monetary policy' was in effect restricted to minting sufficient *denarii* for the Roman state's immediate needs in those areas where the *denarius* circulated.¹⁴⁴ In fact there were few mechanisms by which the Roman state could have utilized these local coinages to expand its supply of *denarii*. It could melt down and recoin the currency of a defeated enemy, as it probably did with the Carthaginian coinage at the end of the Third Punic War. Similarly, the retrieval, in 86 BC, of the cash from the legacy of King Ptolemy Apion of Cyrene (which had been bequeathed to the Roman people in 96 BC) probably contributed to an improvement in the silver fineness of the *denarius* and allowed relatively large-scale issues inscribed with the legend *EX A(rgento) P(ublico)*.¹⁴⁵ Sulla even confiscated supplies of precious metal, perhaps including coin, from the temples of Epidauros, Olympia, and Delphi, when he brought his expeditionary force against Mithradates to Greece.¹⁴⁶ But these were exceptional events. Probably the only regular influence that these local coinages might have had on the supply of *denarii* was if the Roman mint melted down and recoin local civic currency received as payment of *stipendium* (tax) by a tributary state. Otherwise, local coinages were allowed to circulate without interference from the Roman state.

This lack of interference opened up a profitable sideline for banks operating in areas such as the Greek East, because the lack of fungibility between the *denarius* and local coinages would have necessitated the provision of currency exchange facilities.¹⁴⁷ But an Italian bank, operating, say, on Delos, faced the same problem as it did in Italy. For, just as the efficient working of Rome's banking system depended on a sufficient supply of *denarii* in order to function properly, banks operating on Delos could transact currency exchange and lend money to local traders and businessmen only if a sufficient supply of the relevant local civic coinages was available. All would have been well before 88 BC, but the activities of Mithradates on the mainland of Asia Minor and in the Aegean put a stop to that.

BANKS IN TROUBLE

The laws of the 80s BC concerning debt, the effects of the Social and Mithradatic Wars, especially the loss of the *pecuniae Asiaticae*, and the problems with

¹⁴⁴ Cf. Harris (2006: 22).

¹⁴⁵ Crawford (1974: 605, 650–3).

¹⁴⁶ Plut. *Vit. Sull.* 12, 19.

¹⁴⁷ e.g. forty years later, Cicero had HS 2.2 million worth of *cistophoroi* in Asia, which he wanted to exchange into Roman currency (Cic. *Att.* 11.1.2).

Table 5.1. Bank Balance Sheet 1

<i>Assets</i>	<i>HS</i>	<i>Liabilities</i>	<i>HS</i>
Silver coinage	35,000	Deposit (senator) of silver coinage	50,000
Loan (to farmer)	10,000	Deposit (<i>equus</i>) of silver coinage	15,000
Loan (to trader)	55,000		
		<i>Capital</i>	35,000
<i>Total assets</i>	<i>100,000</i>	<i>Total liabilities and capital</i>	<i>100,000</i>

the various coinages combined to create an environment in which it was increasingly difficult for banks to operate. It is worth pausing to consider a simple model of how in practice a Roman deposit bank might have found itself in trouble.

Let us imagine a small bank operating in Rome in the late 90s BC.

The owner of the bank has put up capital of HS 35,000 of his own money; and, being prudent, he keeps this HS 35,000 in cash as a reserve in case something goes wrong. This is the silver coinage on the asset side of 'Balance Sheet 1' (Table 5.1). The banker then accepts a deposit of HS 50,000 from a senator and another of HS 15,000 from an *equus*, meaning that he has total deposits of HS 65,000. Next he lends HS 10,000 to a farmer who wants to buy a new olive press and HS 55,000 to a trader who wants to buy a cargo of wine for export to Asia. The cash reserve of HS 35,000, expressed as a percentage of the bank's total assets, is now 35 per cent, and this percentage is what would be termed, in modern banking parlance, a 'reserve ratio'. Most modern banks operate with reserve ratios of less than 10 per cent, but medieval bankers typically maintained reserve ratios as high as 29–30 per cent.¹⁴⁸ We do not know whether Roman deposit bankers maintained reserve ratios, but it may be considered highly likely that they were prudent enough to have done so.

But in 88 BC, the disastrous news arrives that the trader has been killed in Asia and the banker cannot recover the HS 55,000 that he has lent to him. The result is, if we look at 'Balance Sheet 2' (Table 5.2), that the loan is no longer an asset but a headache. It has disappeared. The banker can use the reserve of silver coinage (HS 35,000) to repay the deposit to the *equus* (HS 15,000). But, while the HS 10,000 loan to the farmer and the HS 20,000 that remains of the reserve of silver coinage can be applied towards repayment of the deposit that has been accepted from the senator, these amounts cover only part (HS 30,000) of the HS 50,000 that is owed. The banker is unable to repay

¹⁴⁸ De Roover (1948: 318) for medieval banks' reserve ratios; Harris (2006: 5, 11, 20) implies that the money-multiplier effect of a deposit bank can happen only in a 'partial reserve' or 'fractional reserve' banking system: 'For every dollar of reserves, there are several dollars of extra money.' But in fact a system of this kind, though prudent, is not a necessity for the money multiplier to operate. For a fuller account, see Fischer, Dornbusch, and Schmalensee (1988: 173–5).

Table 5.2. Bank Balance Sheet 2

<i>Assets</i>	<i>HS</i>	<i>Liabilities</i>	<i>HS</i>
Silver coinage	35,000	Deposit (senator) of silver coinage	50,000
Loan (to farmer)	10,000	Deposit (<i>eques</i>) of silver coinage	15,000
Loan (to trader)	0		
		<i>Capital</i>	35,000
<i>Total assets</i>	<i>45,000</i>	<i>Total Liabilities and capital</i>	<i>100,000</i>

Table 5.3. Bank Balance Sheet 3

<i>Assets</i>	<i>HS</i>	<i>Liabilities</i>	<i>HS</i>
Silver coinage	20,000	Deposit (senator) of silver coinage	50,000
Loan (to farmer)	10,000	Deposit (<i>eques</i>) of silver coinage	0
Loan (to trader)	0		
		<i>Capital</i>	0
<i>Total assets</i>	<i>30,000</i>	<i>Total Liabilities and capital</i>	<i>50,000</i>

the senator the final HS 20,000 of his deposit. As can be seen, from ‘Balance Sheet 3’ (Table 5.3), the bank is bust, because its liabilities exceed its assets; and the banker has lost his own original capital of HS 35,000.

So did banks become bankrupt during the 80s BC? That is what is implied by Cicero’s statement in the *De imperio*, quoted earlier, that *fides* collapsed at Rome and that *solutio* was *impedita*; and there is other evidence too to suggest that banks were very stressed at this time.

During his invasion of Asia, Mithradates made financiers a special target. He offered to remit half their debts to borrowers who killed their Roman or Italian creditors.¹⁴⁹ Also in the East, and in the wake of the crisis, an inscription from Ephesus, dating from about 85 BC, which contains a law about debt, allows bankers ten years to pay back their depositors¹⁵⁰—a rescheduling of debt that our mythical banker would have been extremely pleased to have been granted. Most interestingly, Cicero tells us in a passage from the *Pro Caecina*, written in 69 BC, that a banker, by the name of Marcus Fulcinus, who operated ‘a not ignoble bank at Rome’, sold a farm to his wife during, what Cicero terms, ‘those times when it was very difficult to make repayments’ (*temporibus illis difficillimis solutionis*).¹⁵¹ Cicero must here be referring to the payment crisis of 88 BC, which he describes using similar terminology (*solutione impedita*) in the passage that we quoted earlier from the *De imperio*.¹⁵² The

¹⁴⁹ App. *Mith.* 22: χρήσταις δ’ ἐπὶ δανειστάς ἡμισυ τοῦ χρέους.

¹⁵¹ Cic. *Caecin.* 10–11.

¹⁵² Cic. *De imp. Cn. Pomp.* 19.

¹⁵⁰ Syll.³ 742.58–62.

passage from the *Pro Caecina* goes on to say that the bank was wound up some time later (*aliquanto post iam argentaria dissoluta*).

It is unlikely that all banks were affected in the same way. No doubt some banks, like that of Fulcinus, disappeared, but it is probable that the capital base of many of the ones that did survive was seriously impaired, to the extent that they were inhibited from growing in size.

DEPOSITORS' REACTIONS

With banks collapsing and doubts about the viability of those that remained, it is scarcely surprising that people did not want to leave their money on deposit with financial institutions that they regarded as seriously impaired. The risks of doing so had increased significantly.

At times of increased financial risk, people tend to become very conservative about what they do with their money, and they may react in any of three ways.

The first is that they may decide to hold what they consider to be the safest financial asset, cash; and, in a hard money economy such as Rome's, that meant coin. This is exactly what seems to have happened in the years following the credit crisis of the 80s BC. As Crawford has shown, hoarding of coin in Italy increased to exceptional levels during the 80s and early 70s BC (and it happened again in 49 BC because of the insecurity generated by Julius Caesar's invasion of Italy).¹⁵³

The second thing that happens is that people become more discriminating about credit risk and counterparty risk. In a Roman context, that would have meant that, if a potential lender wished to generate a return on his surplus cash, he would probably have chosen to lend money directly to an acquaintance or a family member. This is because he, as the lender, would have been in a better position to evaluate whether or not the borrower was likely to repay the loan. If, however, the potential borrower did not fall into either of these categories, it would have become significantly more difficult for the lender to assess his creditworthiness (that is, the risk of lending to him), especially as the lender would have been operating in a pre-print culture in which financial information was scarce and unreliable. This very much describes the picture of 'aristocratic financiers' that emerges from Cicero's correspondence. What is so striking about the form of credit provision that his letters describe is that there are often personal ties between borrower and lender. In the example quoted

¹⁵³ Crawford (1969; 1985: 193); Caesar banned anyone from holding more than 15,000 *denarii* (Dio Cass. 41.38.1): see p. 166.

earlier, Quintus Caecilius, the man from whom Cicero did not want to borrow because he charged too much, was Atticus' uncle.¹⁵⁴

The third typical reaction to increased financial risk is a widening of risk 'spreads'—that is, a widening in the size of the premium demanded for taking on extra risk. If the lender is prepared to lend outside his group of family or acquaintances, the lender wants to be rewarded for taking on that additional risk. For a Roman lending within Italy at this time, there was the immediate problem that the interest rate that he could charge was probably capped by the *lex Cornelia Pompeia* of 88 BC at 12 per cent per annum.¹⁵⁵ The only way that a lender could charge a higher interest rate was to lend to an overseas borrower, and, again, there is evidence that this happened. When, in 84 BC, Sulla imposed an indemnity of 20,000 talents on those cities of Asia that had taken the side of Mithradates, Appian says that the Roman *δανεισταί*, 'moneylenders', took advantage of the situation: they lent the funds that were required to pay the indemnity, charged the cities very high interest, and forced them to mortgage much of their public property.¹⁵⁶ Owing to the effect of compounding, this loan had grown to 120,000 talents in fourteen years, suggesting that the interest rates that were being charged were of the order of 30 per cent per annum. It is not only in the twenty-first century that Greece has faced mountainous debts. In the end, in the winter of 71/70 BC, Lucullus had to bring in measures to mitigate the situation.¹⁵⁷ But this was not an isolated example. Similarly and from the same period, a well-known inscription from Gytheion in the Peloponnese shows two Romans, Numerius and Marcus Cloatius, lending money to that city at the eye-poppingly high rate of 48 per cent per annum.¹⁵⁸ Even though abuses were sufficiently flagrant for a *lex Gabinia* of 67 or 58 BC to forbid the lending at interest to ambassadors of provincial cities or of friendly kings, a few years later we find that individual Romans were still lending to Greek cities.¹⁵⁹ In the mid-50s BC, M. Cluvius of Puteoli was lending money to a number of communities in Asia Minor: Alabanda, Mylasa, Caunus, Bargylia and Heracleia in Caria.¹⁶⁰ The city of Nicaea in Bithynia owed T. Pinnius about HS 8 million (333 talents).¹⁶¹ In 60 BC, Castricius had recently collected a debt from Tralles in Lydia and was lending money to Smyrna.¹⁶² Atticus had difficulty collecting debts from Sicyon;¹⁶³

¹⁵⁴ Cic. *Att.* 1.12.1. ¹⁵⁵ See p. 151, n. 103.

¹⁵⁶ App. *Mith.* 62–3; Plut. *Vit. Sull.* 25.2.

¹⁵⁷ Plut. *Vit. Luc.* 7.5, 20.4; Lucullus reduced the interest rate to 12% p.a., cancelled all interest above this level, and allocated one-quarter of each debtor's income to his creditor. Within four years the province cleared off its debt. Subsequently, 12% p.a. seems to have become the usual legal maximum in the provinces. Certainly this rate was enforced by Cicero in Cilicia (Cic. *Att.* 5.21.10–13, 6.1.5–6, 6.1.16, 6.2.1, 6.2.9, 6.3.5). In spite of this limit, Brutus' agent, Scaptius, tried to extort 48% p.a. from the citizens of Salamis (Cic. *Att.* 5.21.10–13, 6.1.5–6, 6.2.7, 6.2.9).

¹⁵⁸ *Syll.*³ 748; later reduced to 24% p.a.

¹⁵⁹ Cic. *Att.* 5.21.12; 6.2.7; Asc. *Corn.* 58C.

¹⁶¹ Cic. *Fam.* 13.61.

¹⁶² Cic. *Flac.* 54, 75.

¹⁶⁰ Cic. *Fam.* 13.56.1–3.

¹⁶³ Cic. *Att.* 1.13, 1.20.4, 2.13.2.

and as a young man he had acted as an intermediary between the city of Athens and a group of demanding financiers.¹⁶⁴ Cicero talks of the rich men who would 'send out their freedmen for lending and pillaging in the provinces'.¹⁶⁵

There were variations on this theme of lending overseas in order to generate higher returns, which, if nothing else, show that definitions of financial activity cannot always be kept within neat boundaries. For example, P. Sittius, according to Cicero, was not just lending out his own surplus funds. He was 'borrowing in Rome to lend out very large sums in the provinces and kingdoms'.¹⁶⁶ Indeed one of the people to whom Sittius was lending money was the king of Mauretania.¹⁶⁷ Similarly Rabirius Postumus was lending out both his own money and that of his friends.¹⁶⁸

In borrowing money in Rome, in order to lend it out in the provinces, both Sittius and Rabirius were, functionally at least, acting as bankers.¹⁶⁹ Sittius, for example, had worked out that, if he could borrow in Rome at, say, 12 per cent per annum, and lend to the king of Mauretania at, say, 17 per cent per annum, then he could make a margin—that is, a profit—of 5 per cent per annum on the amount he lent. In the jargon, he was 'gearing up', and banks and hedge funds still do that today.

BANKING FOR THE MASSES

Catiline's conspiracy in 63 BC produced the second great debt crisis of the late Republic. Looking back in the following year, Cicero said that he had 'raised the siege of the *faeneratores*'.¹⁷⁰ Indeed, Cicero often spoke of the Catilinarian conspiracy as aimed at defrauding creditors, and he styled himself as the 'champion of debt' (*vindex aeris alieni*).¹⁷¹ According to Sallust, Catiline promised the abolition of debts (*tabulae novae*) and proscriptions of the rich.¹⁷² A reduced level of monetary liquidity was again the underlying problem, as it had been in the 80s BC, and it led to the squeeze on debtors that

¹⁶⁴ Nep. Att. 2.2.4; as Hatzfeld (1919: 204) says, if Atticus did this, it was perhaps because the financiers were his compatriots.

¹⁶⁵ Cic. Parad. St. 46: *dimissiones libertorum ad fenerandas diripiendasque provincias*.

¹⁶⁶ Cic. Sull. 58: *Ita Romae debuit ut in provinciis et in regnis ei maximae pecuniae deberentur*.

¹⁶⁷ Cic. Sull. 56.

¹⁶⁸ Cic. Rab. Post. 5: *nec suam solum pecuniam credidit, sed etiam amicorum*.

¹⁶⁹ Note that, within Andreau's definition, which we have adopted, Sittius was not an *argentarius*; it is clear, from Cicero's comments in the *Pro Sulla*, that banking was not Sittius' 'profession'. As we have already seen, there were no regulatory structures or tax legislation to prevent Sittius from acting as a 'quasi-bank'.

¹⁷⁰ Cic. Fam. 5.6.2.

¹⁷¹ Cic. Att. 2.1.11.

¹⁷² Sall. Cat. 21.2; cf. Dio Cass. 37.25.4: *χρεὼν ἀποκοπαί*.

underlay the Catilinarian crisis. One of Catiline's generals, C. Manlius, is made by Sallust to speak of the violence, cruelty, and savagery of the *faeneratores*.¹⁷³

As we saw earlier, the massive issues of *denarii* in the 80s BC seem not to have solved a continued shortage of money in Italy, leading the senate in 82 BC to order the melting-down of temple treasures.¹⁷⁴ Furthermore, as Crawford has argued, the loss of liquidity, resulting from the substantial numbers of large *denarius* hoards that were buried and not recovered in the 80s and the 70s BC, was not made good in the 70s or the 60s, which were periods of small issues of *denarii*.¹⁷⁵ Indeed, the aggregate stock of *denarii* apparently starts to decrease after the early 70s, after rising steadily for generations.¹⁷⁶ Proof positive of the continuing problem of the insufficiency of the coinage is that, in 63 BC, Cicero tried to stop the export of gold and silver from Puteoli, no doubt in order to prevent a further reduction in the level of monetary liquidity.¹⁷⁷

Our elite sources suggest that, at the time of the Catilinarian conspiracy, there was widespread indebtedness among the more humble members of Roman society. Cicero lists, at *In Catilinam* 2.17–23, the groups of people who constituted Catiline's supporters. Among them are failed Sullan colonists and others at the lower end of the economic scale, who had fallen into debt and were hoping for some release through civil unrest.¹⁷⁸

Similarly, Sallust states that among the other supposedly disreputable types that Catiline was able to gather around himself were people who were in debt.¹⁷⁹

Who advanced these loans to the poorer elements of Roman society, to the Sullan colonists, and to the disreputable types of whom Cicero speaks? Our sources give no indication other than Sallust's and Cicero's use of the catch-all term *faeneratores*, and it is impossible to say whether the providers of credit were *argentarii* or 'aristocratic financiers'. It is perfectly possible that small deposit banks (or at least deposit banks that had shrunk in size during the *tempora difficillima* of the 80s BC), owned by professional *argentarii*, continued to operate in various parts of Rome's empire and to provide credit to the small-scale merchant and farmer.¹⁸⁰ Perhaps smaller banks (like that of the Sulpicii in the first century AD) continued to provide credit to those involved in

¹⁷³ Sall. *Cat.* 33.1. ¹⁷⁴ Val. Max. 7.6.4.

¹⁷⁵ Crawford (1985: 193). ¹⁷⁶ Hopkins (1980: 109).

¹⁷⁷ Cic. *Vat.* 12, *Flac.* 67; the mid-50s BC show a short recovery, after which the stock again decreased towards the end of the decade, back to the level of the early 50s (Verboven 2003a: 57).

¹⁷⁸ Cic. *Cat.* 2.21.

¹⁷⁹ Sall. *Cat.* 14.2; cf. 20.13, 24.3; even the Gallic tribe, the Allobroges, whom Catiline tried to draw into his conspiracy, was indebted (Sall. *Cat.* 41.1).

¹⁸⁰ As Von Reden (2002: 146) puts it: 'Clear distinctions must be made between different purposes of credit and their institutional background, in particular between the needs of the general population and those members of a very small elite whose activities, despite being fewer in number, may have been economically more significant than the aggregate number of activities of the rest of the population.'

running a business, *gerendo negotio*.¹⁸¹ Relatives of the Aufidii, who had operated a banking business on Delos at the end of the second century BC, were still active on Tenos in the 70s or 60s BC.¹⁸² The bankers mentioned in the *Verrines* were active at Leptis and Rhegium in the 70s BC. Also, it is perfectly possible that short-term auction finance of the type mentioned by Cicero in the *Pro Caecina* continued to exist.¹⁸³ We cannot, therefore, be certain who the lenders were in the 60s BC, but our model for the impairment of the deposit banks in the 80s should not be taken to imply the total disappearance of such institutions. We should view deposit banking in the first century BC not as an absolute that was either present or absent, but as an industry that, over time, varied in size and scale. It is perfectly possible that some deposit banks did continue to function in the 70s and 60s BC, albeit operating with smaller balance sheets and accepting deposits from, and lending to, smaller clients.

THE ATTITUDE OF THE STATE

Where is the Roman state in all this? The conventional Roman attitude to moneymaking, as put forward by Tacitus in book 6 of the *Annals*, was negative:

*Sane vetus urbi faenebre malum et seditionum discordiarumque creberrima causa eoque cohibebatur antiquis quoque et minus corruptis moribus. Nam primo duodecim tabulis sanctum ne quis unciario faenore amplius exerceret, cum antea ex libidine locupletium agitaretur; dein rogatione tribunicia ad semuncias redactum, postremo vetita versura. Multisque plebi scitis obviam itum fraudibus quae toties repressae miras per artes rursum oriebantur.*¹⁸⁴

(The evil of interest on loans was indeed of old standing and a very frequent cause of sedition and discord, and it was therefore constrained by an ancient and less corrupt morality. For, in the first place, the Twelve Tables prohibited anyone from exacting more than the unciarial rate of interest,¹⁸⁵ when, previously, the rate had been determined by the whim of the rich. Then, by a tribunician bill, interest was reduced to half that amount, and, finally, compound interest was forbidden. But, as often as the many plebiscites were introduced to repress fraudulent behaviour, it reappeared through ingenious schemes.)

¹⁸¹ Cic. *Cat.* 2.21; but even this may be a mistaken impression. Although, at first sight, the sums in the Campanian tablets may appear small, the seventy-seven tablets of the Sulpicius archive dating between AD 35 and AD 55 record, as Rathbone and Temin (2008: 405) have shown, transactions worth HS 1.28 m. (53 talents), equivalent to an average transaction size of HS 16,623 (0.69 of a talent). This average figure is by no means nugatory.

¹⁸² IG XII 860; for the Aufidii on Delos, see p. 140.

¹⁸³ Cic. *Caecin.* 16; Andreau (1984: 105; 1987: 47, 155–61); Rauh (1989: 59).

¹⁸⁴ Tac. *Ann.* 6.16.

¹⁸⁵ For *faenus unciarium* ('the unciarial rate of interest'), see p. 151, n. 103.

This negative attitude towards credit was based on *mos maiorum*—that is, the idealized memory of men, like Cincinnatus, who worked their own small farms and had no need of money. The survival of that ideal, of the ‘horny-handed man of the soil’, which became obsolete in practice as soon as Rome progressed beyond what was essentially a subsistence economy, was largely due to the opinions and influence of Cato the Elder, whom Cicero admiringly quotes as comparing lending to murder.¹⁸⁶

The laws of the 80s BC, in particular the *lex Cornelia Pompeia* and the *lex Valeria*, also suggest that contemporary Roman legislators did not care about the operation of what we would call the capital markets. They display no understanding of the importance of banks, nor of the role of credit creation in producing economic growth. As our discussion of the coinages of this period has shown, the main concern of officials of the Roman state was bullion supplies and minted *denarii*, and there was no comprehension that encouraging banks to lend *more* would actually increase the amount of money in circulation.

The same pattern emerges from later credit crises. In addition to those of 88 and 63 BC, we know of financial crises in 49 BC and AD 33, both of which were also aggravated by a lack of monetary liquidity and both of which show little understanding of the importance of credit institutions for a healthy economy.

The cause of the crisis in 49 BC was the insecurity generated by Julius Caesar’s imminent invasion of Italy.¹⁸⁷ But even before this, there had been problems. Late in 51 or early in 50 BC, a maximum interest rate of 12 per cent per annum had been decreed by both the senate and the tribunes.¹⁸⁸ By 49 BC, there was a rush for cash. Dio Cassius tells us that, because of the uncertainty, nervous creditors began to seek repayment of the principal of their loans in ‘silver’—that is, in coin.¹⁸⁹ It became increasingly hard for borrowers to find the money with which to pay off their debts, and Cicero’s letters of 49 and 48 BC frequently mention *nummorum caritas*.¹⁹⁰ Even if debtors were willing to sell land to raise cash (and many were not willing to do so for social and for legal reasons¹⁹¹), they were selling into a falling market. This meant that, if a property, on which a loan had been secured, was offered in settlement of that debt, it did not necessarily cover the full amount. Thus, by the time Caesar

¹⁸⁶ Cic. *Off.* 2.89, quoted at p. 145, n. 76.

¹⁸⁷ Frederiksen (1966) remains fundamental.

¹⁸⁸ *Senatus consultum*: Cic. *Att.* 5.21; tribunes: Dio Cass. 41.37.2.

¹⁸⁹ Dio Cass. 41.37.3.

¹⁹⁰ Cic. *Att.* 7.18.4 (Feb 49 BC), 9.9.4. (March 49), 10.11.2 (May 49), 10.15.4 (May 49); Frederiksen (1966: 132); Williams (1998: 177); Verboven (2003a: 52) points out that *nummorum caritas* means literally not ‘lack of money’, but ‘expensiveness of money’, and refers to the high interest rates charged on loans.

¹⁹¹ Frederiksen (1966: 128–30).

arrived in Italy in 49 BC, he found that 'credit was tighter and loans were not being repaid'.¹⁹²

Compounding the problem were two other factors. First, the civil war of 49 BC took money out of circulation through hoarding in the same way as it had done in the 80s.¹⁹³ Secondly, Caesar himself made the problem worse by his seizure of the *aerarium* and the coinage it contained in order to pay his troops.¹⁹⁴ As Martin Frederiksen put it, 'in 49, even more than in the similar crises of 86 or 63, soldiers had to be paid and paid immediately, for legion did not fight without powerful inducement'.¹⁹⁵ Caesar therefore used all means to raise coin and, in addition to stealing state funds, sold off Gallic gold for silver.¹⁹⁶

In order to try to remedy the crisis, Caesar ordained a number of measures soon after his arrival in Rome.¹⁹⁷ The first stipulated that, in settlement of a debt, creditors should accept property at a valuation (*aestimatio*) at pre-war prices:

*Constituit, ut arbitri darentur; per eos fierent aestimationes possessionum et rerum, quanti quaeque earum ante bellum fuisset, atque eae creditoribus traderentur. Hoc et ad timorem novarum tabularum tollendum minuendumve, qui fere bella et civiles dissensiones sequi consuevit, et ad debitorum tuendam existimationem esse aptissimum existimavit.*¹⁹⁸

(He decided that arbitrators should be appointed, who would make valuations of real estate and movable property at pre-war levels, and that these valuations would be given to creditors. He considered that this was the most suitable method of removing or diminishing the fear of debt cancellations (which tends to follow war and civil strife) and of maintaining the good favour of debtors.¹⁹⁹)

Secondly, he revived an older law forbidding anyone to hold more than 15,000 drachmas (HS 60,000, or 2.5 talents) in silver or gold.²⁰⁰ In the following year further measures followed indicating that the problems persisted. Dio Cassius reports that, in late 48 BC, Caesar cancelled all interest accrued on loans since the war began (as well as one year's rent up to a maximum of HS 2,000); he also raised the valuations of property to their value at the time the loan was

¹⁹² Caes. *B Civ.* 3.1.2: *Cum fides tota Italia esset angustior neque creditae pecuniae solverentur.*

¹⁹³ Dio Cass. 41.38.1.

¹⁹⁴ Cic. *Att.* 7.21.2, 10.4.8, 10.8.6; Plin. *HN* 33.56; Dio Cass. 41.17.1–2; Plut. *Vit. Caes.* 35; App. *B Civ.* 2.41; Oros. 6.15.5; Caes. *B Civ.* 1.33.3 does not mention it (!). Ironically in the end, this action probably improved the liquidity situation, by releasing into the economy huge sums of money that would otherwise have lain idle in the *aerarium*.

¹⁹⁵ Frederiksen (1966: 132).

¹⁹⁶ Suet. *Iul.* 54.2 claims that the gold was sold off cheaply, but this may be an exaggeration.

¹⁹⁷ Caes. *B Civ.* 3.1; Dio Cass. 41.37–8; App. *B Civ.* 2.48; Plut. *Vit. Caes.* 37.1; Frederiksen (1966: 133–4).

¹⁹⁸ Caes. *B Civ.* 3.1.2; cf. Dio Cass. 41.37.3.

¹⁹⁹ Loeb translation, slightly revised. ²⁰⁰ Dio Cass. 41.38.1.

taken out.²⁰¹ Suetonius adds that Caesar also decreed that any interest paid, or recorded formally as having been paid, should be deducted from the amount of the original loan.²⁰² If we assume that interest had been paid for two years at 12 per cent per annum, this was effectively a cancellation of one-quarter of the amount of the original loan.

It is clear from the writings of Cicero that, despite Caesar's measures, the tightness of credit continued into 46 and 45 BC.²⁰³ Tacitus mentions a *lex Caesaris de modo credendi possidendique intra Italiam* in his discussion of the economic crisis under the Emperor Tiberius in AD 33.²⁰⁴ In view of the fact that, according to Suetonius, the senate acted in that year *ut faeneratores duae patrimonii partes in solo collocarent, debitores totidem aeris alieni statim solverent*, it is usually inferred that Julius Caesar's law too must have prescribed investment of a proportion of capital in Italian land, hence *possidendi intra Italiam* in the passage quoted below.²⁰⁵ This provision must presumably have been intended by Caesar to increase the circulation of money.²⁰⁶ Frederiksen dates the law to late 46 or 45 BC and he also places a *lex Julia de bonis cedendis* in the same period.²⁰⁷ This latter law allowed insolvent debtors to cede their property to their creditors while retaining enough to sustain themselves.

One other relevant action of Caesar's was the minting of a large gold coinage in 46 BC. This came after a few smaller emissions in 48–47, and he no doubt minted the gold because there was not enough silver available to keep his promises to his soldiers (the output of gold coins in 45 and 44 was considerably lower).²⁰⁸ But, whether intentional or not, the effect would have been to increase monetary liquidity.

Before we analyse the credit crisis of the 40s BC further, it is worth looking first at the financial collapse of AD 33, which is described in detail by Tacitus:

Interea magna vis accusatorum in eos inrupit qui pecunias faenore auctitabant adversum legem dictatoris Caesaris qua de modo credendi possidendique intra Italiam caventur, omissam olim, quia privato usui bonum publicum postponitur... Sed tum Gracchus praetor, cui ea quaestio evenerat, multitudine periclitantium subactus rettulit ad senatum, trepidique patres (neque enim quisquam tali culpa vacuus) veniam a principe petivere; et concedente annus in posterum sexque menses dati quis secundum iussa legis rationes familiares quisque componerent. Hinc inopia rei nummariae, commoto simul omnium aere alieno, et quia tot damnatis

²⁰¹ Dio Cass. 42.51.1; Frederiksen (1966: 133–4) for dating.

²⁰² Suet. *Iul.* 42: *deducto summae aeris alieni si quid usurae nomine numeratum aut perscriptum fuissent.*

²⁰³ See Frederiksen (1966: 134, n. 49) for the ancient evidence of the continued tightness of credit.

²⁰⁴ Tac. *Ann.* 6.16–17, quoted at the bottom of this page.

²⁰⁵ Suet. *Tib.* 48; cf. Plin. *Ep.* 6.19.

²⁰⁶ Frederiksen (1966: 134); Williams (1998: 178).

²⁰⁷ 'When Caesar, in the capacity of *praefectus morum*, brought forth a flourish of reformatory legislation' (Frederiksen 1966: 134, 138).

²⁰⁸ Woytek (2003).

*bonisque eorum divenditis signatum argentum fisco vel aerario attinebatur. Ad hoc senatus praescripserat, duas quisque faenoris partes in agris per Italiam conlocaret. Sed creditores in solidum appellabant nec decorum appellatis minuere fidem. Ita primo concursatio et preces, dein strepere praetoris tribunal, eaque quae remedio quaesita, venditio et emptio, in contrarium mutari quia faeneratores omnem pecuniam mercandis agris condiderant. Copiam vendendi secuta vilitate, quanto quis obaeratio, aegrius distrahebant, multique fortunis provolvebantur; eversio rei familiaris dignitatem ac famam praeceps dabat.*²⁰⁹

(Meanwhile a great force of accusers fell on those who were increasing their money by lending at interest in defiance of a law passed by Caesar, the dictator, about the procedure for lending money and for holding land in Italy, a law long obsolete because the public good takes second place to private interest... But then, Gracchus, the praetor, who had responsibility for the inquiry, was compelled by the number of people at risk to refer the matter to the senate. The nervous senators, not one of whom was free from similar guilt, sought indulgence from the emperor. He yielded and a year and six months were granted, within which everyone had to arrange their private finances in accordance with the law. Hence there was a scarcity of money, since, at the same time, a great shock had been given to the whole credit market, and minted coin was ending up in the imperial treasury or the state treasury, because so many people had been convicted and their property sold piecemeal. To address this, the senate had directed that every creditor should invest two-thirds of their capital in Italian land. But creditors were demanding payment in full, and it was not seemly to break faith if one faced such a demand. So, at first, there were disorderly meetings and entreaties; then there was a din in the praetor's court and the very scheme that had been intended as a remedy, the sale and purchase of land, proved the contrary, because the *faeneratores* had hoarded all their money for buying land. Large-scale selling was followed by reduced prices, and the more debt a man had, the more disastrous it was for him to sell, and many were ruined. The loss of an estate destroyed dignity and reputation.

Tacitus portrays the crisis as having been prompted by a series of unprovoked accusations against individuals for lending money at interest in contravention of the law of Julius Caesar *de modo credendi possidendique intra Italiam*, which, as we have just seen, ordained that a proportion of a man's wealth must be invested in Italian land. Tacitus' account suggests that most senators were in breach of the law. He says that, when creditors were forced to invest a proportion of their capital in land, they had to call in their loans. The availability of credit declined, and money once again became scarce. As a consequence, many debtors could not repay their loans, and creditors foreclosed on their property. This threw many properties onto the market, with the result that land prices fell rapidly, which in turn led to more foreclosures.

²⁰⁹ Tac. *Ann.* 6.16–17; see the discussion in Williams (1998: 178).

Sales of the goods of the condemned drew large amounts of coin into the treasury and out of private hands.

In the end, Tiberius came to the rescue, by providing, through the banks, three-year interest-free loans totalling HS 100 million (4,166 talents) to hard-pressed debtors (*disposito per mensas milies sestertio factaque mutuandi copia sine usuris per triennium*).²¹⁰ This increased the flow of money, eased the problems of liquidity, and stopped the foreclosures. Debts could be paid, money lent, and land prices allowed to rise to their former levels. In simple terms, Tiberius restored stability by putting more money into circulation and quickly forgot about the injunction on creditors to invest in land. Although not mentioned by any literary source, it also appears from numismatic evidence that, as an additional measure to ease the crisis, more coin was minted. The relative amount of precious-metal coinage in circulation increased significantly after these events, with the average output of *denarii* growing by eight times and that of *aurei* by three times in the last six years of Tiberius' reign.²¹¹

There are, of course, differences between all these credit crises. In the 80s BC, the crisis was provoked by the Social and Mithradatic Wars and especially by the loss of the *pecuniae Asiaticae*, in the 60s BC by a conspiracy to overthrow the Roman government, in the 40s BC by a civil war, and in AD 33 by a series of gratuitous accusations against leading creditors. There are, however, a number of similarities that help to illuminate the options available to the Roman state in handling monetary crises.

The first option, which we can observe operating in the 80s and 40s BC and in the 30s AD, was to mint more coin. In the 80s BC, there were large issues of silver *denarii*, followed, under Sulla, by some small issues of gold coin. In the 40s too, gold coins were minted, eventually in great quantities; but the issuance of *denarii* was not an option for Julius Caesar, since, as is shown by his seizure of the *aerarium*, he was desperate to get his hands on as much silver as possible to pay his troops. And there was the rub. The problem with attempting to improve monetary liquidity by issuing more coin was that it was crucially dependent, at least before the introduction of the gold coinage in the 40s, on having adequate supplies of silver. As is shown by the limited debasement of the *denarius* at the beginning of the 80s, sufficient supplies of silver were not always available, and this could lead to manipulation of the bullion content of the coinage by the state.

The second option was to limit hoarding, as Caesar did in 49 BC, in order to keep coinage in circulation. But it was impossible for the Caesarian regime to police compliance with this law, unless informants were allowed to operate, which Dio Cassius specifically says they were not.²¹² An attempt, with the

²¹⁰ Tac. *Ann.* 6.17. See p. 141, n. 34.

²¹¹ Duncan-Jones (1994: 25, 251).

²¹² Dio Cass. 41.38.3.

same objective of maintaining the supply of coin, was made by Cicero in 63 BC, when he restricted the export of gold and silver.

The third option, which was to assist debtors by forcing creditors to invest in land and which was tried in the 40s BC and in AD 33, was ill-conceived and doomed to failure. The only result, as Tiberius discovered, was that creditors called in their loans, forcing debtors to sell property, which in turn caused a collapse in land prices. Similarly ill-conceived was Caesar's insistence that creditors should accept unrealistic (that is, non-market) pre-war valuations on land offered in settlement of a debt. The only result of this was to punish lenders and to discourage them from further lending.²¹³ Other measures of Caesar's were even more overtly hostile to lenders—namely, his cancellation of all interest accrued on loans since the war began, and the deduction of any interest already paid from the amount of the original loan. In all but name, this last measure was a partial cancellation of debt, similar in effect, if not in scale, to the *lex Valeria* of 86. It is little surprise that *nummorum caritas* appears to have dragged on into the 40s BC.

In fact, apart from the minting of new coin, the only government measure that was helpful to lenders, during any of these crises, was the provision of liquidity through interest-free loans by Tiberius in AD 33—functionally the same as what we would call quantitative easing. That worked because it stimulated more lending, since the funding of loans cost nothing, provided that sufficient collateral was posted. Most of the other measures during the previous century add up to a sad litany of economic mismanagement. One other approach that might have helped was for the Roman state to borrow from the private sector; but, after the Second Punic War, this was, for whatever reason, never seen as a viable approach, and no issue of Roman government bonds ever took place.

ECONOMIC IMPACT

We said at the beginning of this chapter that a deposit bank produces a 'money-multiplier' effect, which will expand the money supply; and that such expansion will normally influence the level of economic activity. On these grounds alone the impairment of the deposit banks by the crisis of the 80s BC should theoretically have damaged the economy, because it restricted the supply of money. Nor do we believe that a system of *delegatio debitoris*, securitized debt, would have been sufficient to take up the slack. It seems inherently unlikely that the secondary market in loans made by and to

²¹³ Cf. Cicero's joke to Papirius Paetus at Cic. *Fam.* 9.16.7, discussed by Frederiksen (1966: 135).

members of the Roman elite was sufficiently active, extensive, and liquid to achieve this. This is because, even in the relatively small world of the Roman elite, the potential acquirer of a loan would be taking on the credit risk of a debtor who may not be known to him and, even more importantly, whose ability to repay the loan might be totally unclear. So, for example, when faced with the *nomina* that Faberius wanted to transfer to him in the year 46 BC, Cicero anxiously tells Atticus that he knows nothing about a certain Caelius, a debtor for one of these *nomina*: *De Caelio tu quaeres, ut scribes; ego nihil novi. Noscenda autem est natura, non facultas modo*²¹⁴ ('Please make enquiries about Caelius, as you suggested in your letter; I know nothing about him. We need to know about his character, not just his means'). The evidence that we have been examining, a large part of which comes from Cicero, suggests that there was a significant change in the institutional structure of the capital markets of first-century BC Rome. It portrays a financial world in which most lending is between individuals and in which the problem of asymmetric knowledge impairs the lending process. It is not a world in which deposit banks appear to have an extensive role. Of course, this evidence could be biased, since it principally reflects the financial activities of the circles in which Cicero moved. Inevitably, therefore, the black and white picture of financial change, which we have presented, conceals a number of areas that are very grey. For example, it is perfectly possible that banks, like that of, say, the Sulpicii, which dealt with the shippers and businessmen of Puteoli in the first century AD, continued to operate: it might just be that the evidence is lacking. We are not therefore saying that Roman deposit banks disappeared completely by the middle of the first century BC; nor are we saying that a system of transferable *nomina*, operated by 'aristocratic financiers', did not exist in the second century BC. What we are saying is that it is likely that, by the mid-first century BC, there were fewer banks in existence, with smaller balance sheets, that the main providers of credit had become the 'aristocratic financiers', instead of the *argentarii*, and that this development could have had a negative impact on the wider Roman economy, or, at least, could have prevented it from reaching its full potential. The crisis of 88 BC and the legislation of the 80s were the principal causes of this change. They are also the reason why we do not hear of any large Roman banks evolving in the first century BC.

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²¹⁴ Cic. Att. 12.5a.

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Nile River Transport under the Romans

Colin Adams

Modern scholarly literature discussing the role of transport in the ancient economy has traditionally seen a separation between overland transport and maritime transport, and has rarely dwelt on the issue of transport by river or canal. This is largely due to distinctions drawn in the cost of land and sea transport, a well-known debate, which requires no full rehearsal here.¹ Attempts have been made, however, to establish ways in which transport was integrated, the idea being that land, rivers, and seas were connected, with ports on either rivers or coasts serving as transport hubs.² While it is clear that this is a matter that needs further unpacking, here I want to concentrate on Roman Egypt in the first three centuries AD, considering the integration of transport, before moving on to consider one of the fundamentals of the economic life of Roman Egypt, the transport of tax grain and other commodities by river. Although the transport of grain for the state was not the only river transport that took place, and other transport of a private nature will be considered here, we know most about the transport of grain for the state simply because relevant documents are more commonly preserved in the papyrological record.

It would be normal here to discuss the limitations of papyrological evidence, and to make a case for its wide relevance against accusations of the uniqueness of Egypt and its evidence. A stronger stance should be taken, however, for, although the Nile was an important transport highway, it is not unique as a river in the Roman Empire, in the sense that it provided an excellent system of communication, although other rivers may have benefited from a more extensive system of complementary land routes. However, the challenges and economic realities faced by Egypt's inhabitants were similar to those of, for example, their Gaulish counterparts on the Rhône, the annual inundation

¹ For an overview, see Adams (2012).

² Originally suggested by Hopkins (1980), noted and discussed by Horden and Purcell (2000), and discussed by Adams (2007; 2012). See now the fundamental book on rivers in the Roman world, Campbell (2012: esp. 215–19).

apart: transport had to be provided over long distances at a cost that was economically viable.³ It is tempting to see the Nile as the perfect trade highway, offering easy communication throughout Egypt, but the reality was different. Indeed, shippers on the Nile faced difficulties of navigation and wind not experienced on other rivers, making Nile river transport a much more seasonal occupation than is often thought.⁴ We should also avoid the temptation to see Egypt as the only important grain provider for Rome, as Paul Erdkamp has recently shown, even though it is clear that grain provision was a central aspect of economic and administrative life: ultimately all provinces were required to deliver tribute and resources to their Roman masters.⁵ But some limitations in our evidence abide. We are comparatively well informed about land transport. However, the presence of the river and the moistness of the soil environment in river ports (to say nothing of Alexandria) means that we have far fewer documents relating to river transport.

NILE GRAIN TRANSPORT UNDER THE ROMANS: TAX GRAIN

There is substantial evidence for the transport of tax grain by land in Egypt.⁶ Although many questions of detail still remain unanswered, our knowledge of procedure is reasonable—the main gap being evidence from the central administration in Alexandria. Thanks to a small number of detailed documents from the Fayum, we have a good idea of how grain arrived at harbours and was loaded onto ships. It is the organization of river transport, however, that is slightly less clear. Older works, principally following a seminal work by Rostovtzeff, have described a system of organization that enjoyed a more or less seamless transformation from the Ptolemaic period into the High Empire, based on long-established corporations of *naukleroi* working for the state.⁷ Such a view cannot be maintained, not least because we have a significant gap in our evidence between the third century BC and the reign of Hadrian. No doubt there was continuity in some ways, but there was also significant change over time. Nile river transport in the Ptolemaic period has been discussed in

³ On the typicality of Egypt, see the comments of Bowman (2001). For transport issues in Gaul and Britain, see Fulford, Chapter 10, this volume.

⁴ Cooper (2011), who stresses the effects of the inundation, resulting in high water, which made navigation easy and swift, and low water, when river flow was sluggish and the water shallow, allowing the use only of boats with a shallow draft. This had a knock-on effect on navigable canals, and may actually have increased the importance and role of land transport when the Nile was low.

⁵ Erdkamp (2005).

⁶ Adams (2007: 159–95).

⁷ Rostowzew (1906), which finds its way into Rostovtzeff (1922: 125, n. 94).

an important paper by Thompson.⁸ It is clear that significant changes took place under Roman rule. The relationship between shipowners and their captains was certainly different. She discusses the possibility of there being corporations of *naukleroi* in this period, but the evidence is not without its difficulties, as we shall see. The role of these institutions of the Roman period has been exaggerated, and some important points about state control need to be made more forcibly.⁹ Although the subject has received some scholarly interest, these treatments are significantly out of date, and much of relevance has been published since, both papyri and modern discussion.¹⁰ More recent scholarship has focused not on the transport of grain within Egypt, but rather on its shipment to Rome.¹¹ Here I want to consider the relationship between land and river transport of grain in an attempt to outline the overall process of transporting the *annona*, to explore in detail the organization of river transport, to attempt to quantify the scale of the operation, to assess the interest and involvement of the state in the system of transport, and finally to discuss river transport in Egypt more generally in an attempt to assess the relationship between public and private shipping.¹² More general economic implications will also be explored. The traditional picture of high transport costs forcing a localization of trade cannot be maintained fully, for the papyri show that transport rates were low. This applies to both transport by water and land. Thus we have to rethink these issues, and accept that it is likely that a good deal more long-distance transport both by water and land took place, and that, concomitant to this, communication between individuals about market conditions was much better than we might have thought. This would not have happened if profit could not be made. What will also become clear is that there was considerable overlap between the public interests of the state (and how these were achieved) and opportunities for private gain: in short, that state-driven activities provided an environment for the expansion of private trade.¹³

But, before turning to the organization of river transport, we need to set out the details of how the transport of grain by land to harbours interfaced with river transport.¹⁴ The system was founded upon firm state control of transport resources, and the development of transport liturgies, which paved the way for

⁸ Thompson (1983). Also on the Ptolemaic background, see *P. Erasm. II passim*.

⁹ General discussions in Vélissaropoulos (1980: 110–21); De Salvo (1992: 465–82).

¹⁰ Rostowzew (1906); Wilcken and Mitteis 1912: 1/1. 376–80; Merzagora (1929); Hohlwein (1938); Börner (1939); Schwartz (1948); Meyer-Termeer (1978); Vélissaropoulos (1980). Vinson (1998) offers an oddly conflated discussion of some relevant issues for the Pharaonic, Ptolemaic, and Roman periods, which glosses over a range of important differences in culture and practices between them. Rougé (1966) is still fundamental, but Egypt is not its focus.

¹¹ Most importantly: Rickman (1980); Sirks (1991); and Erdkamp (2005).

¹² See Thompson (1983) for an initial attempt to quantify some figures for the Ptolemaic period.

¹³ The point made originally and forcefully by Hopkins (1980).

¹⁴ Some discussion in Adams (2007: 191–3).

the devolvement of day-to-day organization of transport on to communities, and eventually on to town councils in the third century and later.

It was the responsibility of cultivators to deliver grain to threshing floors during the harvest period. This procedure is well understood, and need be outlined only briefly here. *Praktores sitikôn* received the grain and provided receipts for delivery.¹⁵ It seems certain that private individuals could take their grain away only after the state had extracted the relevant amount of tax.¹⁶ Once this had been done, the *praktores* arranged for the transportation of tax grain to granaries using animals provided through liturgy.¹⁷ Granary officials (*sitologoi*) received the grain and made detailed accounts for the office of the *strategos*, who oversaw the whole process. *Sitologoi* were responsible for the organization of the transport of tax grain to harbours, undertaken by animals provided for state service—although navigable canals were also used.¹⁸ Certainly in the Fayum, canals must have been used alongside transport overland by pack animals; this is suggested by one document from AD 155, where donkey drivers are paid for their services in transporting grain from the village of Narmouthis to ‘the harbours’, the plural suggesting these must be the smaller harbours on canals, which would make transport from this remote village to the main harbours more efficient.¹⁹

We have a number of important and lengthy documents offering evidence for this part of the procedure. The earliest and most important of these is BGU III. 802 (AD 42), a record of deliveries of grain, barley, lentils, and various types of bean by land for onward transport to the harbour at Ptolemais Hormou. The account is a daily record, drawn up by the harbour officials at the Sacred Grove in Arsinoe, of an extended process of receipt of consignments from *sitologoi* and allocation to a shipper over the period of about a month over July and August. It shows the sharp division in competence of individuals involved. *Sitologoi* were responsible for the transportation overland to the harbour of the Sacred Grove, while *naukleroi* were responsible for its onward transportation by canal and river.²⁰ It seems clear that the *naukleros* in this case was responsible for shipment to Ptolemais Hormou, where the foodstuffs would be transferred into larger ships for transport to Alexandria. The quantities were substantial (Table 6.1).

¹⁵ List of relevant documents in CPR XV. 35–8, with p. 88, n. 1.

¹⁶ P. Oxy. XLII. 3028 (early third century).

¹⁷ Reiter (2001); Adams (2007: 172–91).

¹⁸ P. Oxy. IX. 1197 (AD 211) and XXX. 2568 (AD 264), although BGU III. 802 and P. Hamb. I. 17 may also concern transport by canal. On the role of *sitologoi*, see Aly (1950; 1956).

¹⁹ BGU XIII. 2270, with Adams (2007: 185, n. 91).

²⁰ Earlier works interpreted P. Hamb. I. 17 (AD 210) as evidence for a *naukleros* organizing land transport, but this interpretation should be rejected, see P. Col. I, recto 4, intro., Adams (2007: 186–7).

Table 6.1. Consignments of agricultural products received at the harbour of the Sacred Grove in Arsinoe and shipped onwards to the harbour at Ptolemais Hormou, AD 42 (in *artabas*)

	Wheat	Barley	Lentils	Kidney beans	Beans
Delivered	270,808	37,839.5	6,544.5	168	6,794
Shipped	267,897.5	34,848.5	5,407	168	4,008
<i>naulon</i> ^a	2,330	198	17.25	?	?
Balance	580.5	2,793	1,123	?	2,786

^a Charge for shipping, in this case charged in kind (see p. 201).

Note: The *artaba* was the unit of measure for grain crops in Roman Egypt. Its size varied; however, it is best to follow Rathbone (1983b), who suggests that the standard *artaba* was 40 *choinikes*, equivalent to c.43 litres, weighing c.28 kg. See also Adams (2007: 77–81).

Source: BGU III. 802.

The total amount of produce shown in Table 6.1 was transported, it seems, on small river boats making short journeys to Ptolemais Hormou.²¹ The consignments were delivered to the *naukleros* Heracleides, who then distributed cargoes to ships' captains (*kubernetai*), and in one case issued a cargo to a soldier named Secundus, a centurion of the Third Legion, who was acting as supercargo, for onward transport to Alexandria. These ships were larger—the ship under the control of Secundus was of 900 *artabas* burden. It seems clear that the timing of the land transport of tax grain and other commodities came immediately after the harvest, and was designed to coincide with the presence of ships at ports, organized separately. It was the task of *naukleroi* to ensure that ships were ready. However, the pace of work was often frantic, as is shown by one document detailing the round-the-clock loading of ships, and a papyrus from Oxyrhynchus detailing the delivery and loading of 10,000 *artabas* of grain over an eight-day period.²²

The use of smaller vessels to transport grain for embarkation on larger vessels is not confined to the Fayum. *P. Oxy.* IX. 1197, of AD 211, preserves a guarantee given by Tithoës, son of Sarapion and Ptolemon of Phacusae (who describes himself as a 'corn-lader'), and introduces an interesting feature in the organization of river transport. They promise to the *strategos* of the Oxyrhynchite Nome that they will provide the small boat owned by Tithoës, 150 *artabas* burden, 'for the lading of the government corn wherever the boats collected in accordance with the orders of lading arrive'. Clearly there was pressure to ensure that enough boats were available to complete loading and shipping, and it is evident that there were on occasion difficulties in supplying

²¹ In cols XII–XIV, boats are loaded on Mesore 2, and returned to be loaded again by Mesore 4.

²² *SB* XIV. 11,371 (first century AD); *P. Oxy.* XXXIII. 2670 (AD 127).

the requisite number of ships.²³ An interesting adjunct to this text is another Oxyrhynchus papyrus, an acknowledgement by Aurelius Heracles that his boat, 'with its two willow-wood oars, which I provided for the lading of state corn in accordance with the letters of our most illustrious prefect Claudius Firmus', had been returned to him.²⁴

This process of transferring grain from smaller vessels to large came to be known as *διέρρασις*, and is attested in a number of documents from Oxyrhynchus and the Fayum, as already briefly mentioned.²⁵ There is little doubt that this normally meant the use of smaller vessels—generally 250 *artabas* or less—to load grain on to larger river craft, although in one case there is an interesting exception to this rule. The earliest text, from Oxyrhynchus, is an instruction from a *strategos* to issue payment to eleven *διεραματῖται* for the delivery of grain directly to Neapolis—a considerable distance in small vessels.²⁶ In line with other aspects of transport, the provision of boats for *διέρρασις* became a liturgy, but our evidence comes mainly from the third century, although it is possible, but not certain, that a document from Tebtunis, dating to AD 191–2, indicates liturgical service.²⁷ The Oxyrhynchite boat-owners already mentioned must also have supplied their vessel as a liturgy. This might allow us to put the general development of liturgical service in river transport around AD 200, but it is not clear how this relates to the *naukleria*, as we shall see.²⁸ What is clear is that, in BGU III. 802, this later process was anticipated, but was not organized separately from the responsibilities of *naukleroi*.

The central direction of the transport of grain is clear from the documents just mentioned. The general orders for transport to take place came from the prefect, so we now must turn to the role of the state in transport and how the *naukleroi* were engaged.

²³ C. P. Herm. 6, a petition to the emperor Gallienus from *bouleutai* of Hermopolis complaining that their carefully laid plans for the transport of wheat had been scuppered by a scarcity of vessels, because of fraudulent practices.

²⁴ P. Oxy. XXXI. 2568 (AD 264). Aurelius Heracles describes himself as a 'boat-builder' (*πакτωνοποιός*).

²⁵ P. Oxy. LXVI. 4526 (AD 69/70); P. Tebt. II. 328 (AD 191–2); P. Oxy. IX. 1197 = SB XIII. 13,333 (AD 208); P. Hib. II. 216 (AD 212); P. Oxy. XXXI. 2568 (AD 264); P. Köln V. 229 (AD 178); P. Mil. Vogl. III. 189 (AD 206/7); P. Oxy. LVII. 3912 (AD 266?).

²⁶ P. Oxy. LXVI. 4526 (AD 69/70).

²⁷ P. Tebt. II. 328: where a citizen of Arsinoë describes himself as the *epistrategos*, 'having been selected' (*κληρωθεῖς*) for the *διέρρασις* of public wheat. However, in P. Oxy. LVII. 3912 (AD 266?), the editors note that the fact that the sailor performing the *διέρρασις* who was receiving wages was not necessarily serving voluntarily, but, by the same token, the fact that he had taken an oath does not necessarily mean he was performing a liturgy. What is clear from Oertel (1917: 82–8) is that such labour was liturgical in the fourth century but that in the third century obligations were placed on the well-to-do and on communities, but that the men provided to undertake the labour were doing so voluntarily.

²⁸ This accords with the observations of Oertel (1917: 130).

Perhaps the best place to start is with the best-known document concerning grain transport by river:

Papiris to his most honoured friend Apollonius, strategos of the Apollonopolite Heptakomia, greeting. I wish you to know that I have been commissioned to go to your nome alone with a boat of about 4,000 *artabas* burden, having myself asked for your nome and being granted it by Besarion. But after receiving my commission I have been detained by the procurator to act as priest to the pilots' (*kubernetai*) 'corporation' (*cheirismos*). Be kind enough, dearest friend, to assist my men, since I have not come in person to do reverence to your most honoured self, and command me in the assurance that I can serve you; you are aware that I have room for another 80,000 *artabas* on the boats at my command, enough to make a clean sweep of your nome. Now you must know my lord, that if one acts as priest to the pilots' corporation, (one must)...the procurator... Year 2 of Hadrianus Caesar Augustus. Epeiph 16. I pray for your health.²⁹

This letter, written by Papiris, a *naukleros*, was addressed to the *strategos* of the Apollonopolite Heptakomia, a collection of nomes lying south-east of the Fayum. It is clear that, within their nomes, *strategoï* and royal scribes oversaw the organization of land and canal transport of tax grain.³⁰ They were also responsible for the organization of the lading of ships in the ports of their nome. There were, of course, changes over time. These changes are hard to trace with certainty, and it is difficult to establish clear chronologies, given the preservation of texts and possible local deviations in practice. However, there are certain periods of profound change, such as the reigns of Trajan and Hadrian, Septimius Severus, possibly Aurelian, and the fourth century.

As mentioned above, the existence of a corporation of *naukleroi* was first postulated by Rostovtzeff, who suggested that this corporation, called the *cheirismos*, was established under the early Ptolemies to transport grain for the state.³¹ It was not merely a private group of *naukleroi* employed by the state, but rather an organization created by the Ptolemies. He further argued that this institution was retained in the Roman period. All of this is founded on very little evidence, and seems unlikely. Even the argument that there existed a number of corporations of *naukleroi* after the mid-second century BC, for which some evidence can be adduced, is not fully convincing, as collective action on the part of *naukleroi*, for example, in seeking payment, does not necessarily mean they have formed a distinctive corporation.³² However, from the first century BC, three documents mention what is taken to be an association

²⁹ P. Giss. 11 = W. Chr. 444 = *Sel. Pap.* II. 423 (AD 118); cf. Johnson (1936: 412, no. 257) (trans. adapted from Hunt and Edgar (1934)).

³⁰ Hohlwein (1969: esp. 123–6).

³¹ Rostowzew (1906); Rostovtzeff (1922: 125, n. 94); Vélissaropoulos (1980: 110–11).

³² BGU X. 1933 (230 BC) preserves a request for payment issued by four *naukleroi*, but their relationship is unclear. Vélissaropoulos (1980: 111, n. 121) is insufficiently critical.

of *naukleroi Hippodromitai* based in Memphis.³³ The *naukleroi* had a *prostates*, who served for a short period (one month, perhaps two), and a *grammateus*, who served for a longer period.³⁴ But to argue from this for the existence of a corporation (in the sense of a long-lived, formal institution) seems strained, as any group, formal or informal, could have such individuals, and could act collectively. Also, as Memphis was an established centre of shipping, it may be anomalous.

In the Roman period, our evidence is similarly meagre.³⁵ Rostovtzeff saw a seamless continuance of his Ptolemaic corporations into the Roman period, where there was a corporation of *naukleroi* engaged in the transport of grain for the government, but there is no clear evidence for this—it was doubted by Wilcken.³⁶ The only evidence adduced for a corporation of individuals connected to grain shipping is *P. Giss.* I. 11, already cited, but this is based on an erroneous translation of the Greek, which has found its way into the scholarly literature.³⁷ *Cheirismos* here can only mean ‘administration’, and must refer to the ‘administration of Neapolis’, clearly mentioned in other documents. In some cases *naukleroi* describe themselves as a ‘*naukleros* of the administration of Neapolis’, but this does not necessarily denote a guild, as Rostovtzeff saw it, but merely that they customarily hired out their boats to the state for the transport of tax grain.³⁸ A document of AD 231 has been taken by some to show that a corporation existed by this date, but it falls short of being definitive proof.³⁹ All that can really be said is that, by the end of the third century, a *corpus naviculariorum* existed in Egypt, which was similar to others in the Roman world. Before this, the situation is unclear.

There is some evidence for collective action. In a text dating to AD 155, a list of receipts for payment for the transport of tax grain, payment is made to a ship’s captain called Demetrius (he is also the owner of his 800 *artabas* burden

³³ *BGU* VIII. 1741–3 (64–63 BC), see Hauben (1971: 269–72; 1978: 99–108); Vélissaropoulos (1980: 113); Thompson (1983: 69–70).

³⁴ Thompson (1983: 69), also cites *SB* 8754 (77 BC), where a number of *naukleroi* act in concert in loading ships. Collective action does not denote a corporation, as in *BGU* X. 1933.

³⁵ Vélissaropoulos (1980: 115–21); De Salvo (1992: 465–82).

³⁶ Wilcken and Mitteis (1912: 1/1. 369–70). De Salvo (1992: 467) seems to argue that the activities of corporations intensified in the Roman period, but this misunderstands the situation.

³⁷ *P. Giss.* I. 11 = *Sel. Pap.* II. 423 = Wilcken and Mitteis (1912: 1/1. 444 = Johnson (1936: 257), where the procurator (of Neapolis) appoints the writer as priest τοῦ χειρῆμοῦ τῶν κυβερνητῶν). Johnson translates as ‘guild’, Hunt as ‘corporation’, and this meaning has found its way into *LSJ* (solely on this evidence). This, however, raises the question of the role of the priest. Is it possible that there was a priest attached to the administration at Neapolis? It is not unlikely that divine protection might be sought for boatloads of grain being transported to Neapolis, and a parallel might be the blessing of loads of stone being transported at Kertassi; see Lewis (1993: 119–20), who notes also that in this case we need not think of associations, and this is linked to *P. Wash.* II. 80 (third century), held by the editor, erroneously, to be evidence of a guild. It should also be noted that *LSJ* cites *P. Oxy.* XVII. 2125, where χειρῆμος is described as a ‘department’.

³⁸ See, e.g. *P. Oxy.* X. 1259, 1260 and *P. Oxy.* XVII. 2125.

³⁹ *SPP* XX. 32, with Vélissaropoulos (1980: 118–21).

vessel) for the transport of various commodities for the state. Two men, Ammonius and Dionysius, ‘presidents [*prostatai*] of the *naukleroi* of the Arsinoite Nome’, act as his guarantors.⁴⁰ In another text from Oxyrhynchus, dating to AD 178, we have an oath of office of a number of *naukleroi*, who describe themselves as ‘all (of them) of the *naukleroi* of the city of Oxyrhynchus’.⁴¹

Are we dealing here with a corporation or ‘guild’? It is tempting to think so. However, the normal terminology is absent, so *cheirismos* cannot mean guild in the same way as *sunodos*, the most common term.⁴² Any group of individuals acting collectively can have *prostatai* or *grammateis*, and indeed they can be entirely separate from any collective.⁴³ This is clear, for example, with groups of animal drivers engaged in state transport, who worked in collectives based in villages, sought payment often through *grammateis*, but did not represent guilds as normally understood.⁴⁴ The evidence for *naukleroi* acting independently far outweighs the evidence for them acting collectively, and there seems therefore to be no exclusivity, which we would expect with guilds, even if it would be more limited than those of later periods.⁴⁵ Furthermore, it seems strange indeed that, in *P. Giss.* I. 11, the procurator appointed Papiris as the priest of the *kubernetes*. In a guild made up of private individuals, how can a procurator appoint an official?

The most convincing evidence for the *χειρίσμος* being a state-administered department rather than a guild comes from *BGU* I. 8 (AD 248). In this text, which seems to be part of a list of copies of letters, perhaps of a *strategos*, Magnius Rufus, the procurator of Neapolis, writes to the *strategoi* of the Heptakomia and Arsinoite Nomes. It concerns one Hierax, a *naukleros* who is described as a debtor to the *cheirismos* (περὶ ἀ[ν]αζητήσεως ὑπαρχόντων Ἰέρακος ναυκλήρου τοῦ χειρισμοῦ). More importantly, he is described as a debtor to the *fiscus*, and the state wishes to confiscate his property (περὶ π[ό]ρου Ἰέρακος Ἰέρακος ναυκλήρου τοῦ τῆς Νέαςπόλεως χειρισμοῦ χρ[ε]ώστο]υ τοῦ ἰ[ε]ρωτά[τ]ου ταμείου). Surely this must show that the *cheirismos* was not a guild, but rather a state department. The mid-third-century date of the text is

⁴⁰ *P. Col.* 1, recto 4, col. X, l. 10: προεστῶτες ναυκλ(ήρων) Ἀρσινοίτου. See Vélissaropoulos (1980: 115), who sees them as members of a corporation.

⁴¹ *P. Köln* V. 229: οἱ πάντες ἐκ ναυκληρίου Ὀξυρύγχων πόλεως. The editors use the noun *ναυκλήριον*, which they state must be a ‘Kollegium’. The only similar usage is in *P. Oxy.* I. 87 (AD 342) = *W. Chr.* 446 = *Sel. Pap.* II. 333, although the exact meaning is not clear. The editors of *P. Köln* V. 229 suggest the contraction *ναυκλ(ήρων)* in *P. Col.* 1, recto 4, could be resolved with (ηρίων); equally it might not.

⁴² Gibbs (2008: 22, 105–11). Occasionally other terms such as *koinon* or *politeuma* appear in texts. It seems clear, though, that *sunodos* was the term used by the state to describe associations—this is shown clearly by *BGU* V. 1210, l. 240, the so-called *Gnomon of the Idios Logos*.

⁴³ Gibbs (2008). See *P. Mich.* XI. 620 (AD 239–40) for a range of usage for *prostates*—e.g. *prostates* of a vineyard, clearly unconnected to associations.

⁴⁴ Adams (2007: 182–5).

⁴⁵ Some associations clearly enjoyed exclusivity, e.g. the ‘donkey-sellers of Oxyrhynchus’ (cf. Adams 2007: 99–100). For salt-merchants, see Adams (2013: 274).

significant, in that it shows that, even by this time, guilds were not involved in grain transport in Egypt.

The exact nature of the relationship between *naukleroi* and the administration (*cheirismos*) of Neapolis, under the direction of the procurator, is difficult to establish, but it can be stated with confidence that shipowners regularly hired out their ships to the state, and that this system was administered centrally in Alexandria. The earliest evidence we possess for the procuratorship dates to AD 104, the latest to AD 248.⁴⁶ If these dates represent the full duration of the office or close to it, and it is possible that they do, then this is significant. The reign of Trajan saw a series of far-reaching reforms within Egypt, and the appointment of a new procurator over a more rigidly controlled 'administration' of the *annona* would fit this picture.⁴⁷ The *terminus post quem* of AD 248 for the disappearance of the procurator may fit, albeit some years later, with the tantalizing evidence supplied by the biographer of the emperor Aurelian, which shows some move towards a standardization of organization of transport between Egypt and other eastern provinces.⁴⁸ In the last fifty years or so of the third century, our evidence is thin; it is possible that the *naukleroi* were organized in the same way as *corpora navicularii* elsewhere, and that they were directed by the state, but this is not clear.⁴⁹ The importance of Egypt to Rome's grain supply, it seems to me, required special measures. The loading of tax grain onto ships also underwent some changes, whereby officials (whose name we do not have) were responsible for this.⁵⁰ This process came to be known as the *embole*, and later, and possibly linked to the change in organization of *naukleroi*, came to be formalized as the responsibility of an official known as the *embolarch*, a short-lived post dating between AD 273 and 310.⁵¹ Moving from the third into the fourth century, we see profound change. In the third century there began a shift in responsibility onto the *boulai* of the Egyptian metropoleis, and in the fourth century this became firmly established.⁵² Town councillors, acting as *ἐπιμεληταὶ* ('overseers'), were charged with the loading of tax grain onto ships destined for Alexandria or Pelusium (the latter because grain was now shipped to Constantinople as well as to Rome). *Kubernetai* provided sworn oaths that grain was loaded and that it would be delivered, unadulterated, to its destination. As we would expect, in the contracts the size of the vessel and its load were detailed. In Alexandria, the principal official was now the *Praefectus Annonae Alexandriae*. We are,

⁴⁶ Earliest *P. Lond.* III. 904 (p. 125), with Pavis d'Escurac (1976: 435); latest *BGU I.* 8 (AD 248). For the role of procurators in transport of ceramic goods in Gaul, see Fulford, Chapter 10, this volume.

⁴⁷ Sijpesteijn (1965; 1982).

⁴⁸ *HA, Aur.* 47.3, with Sirks (1991: 139–40).

⁴⁹ For a different view, see De Salvo (1992), but it is unclear how this might apply to Egypt.

⁵⁰ *P. Oxy.* XVII. 2125 (AD 220/1).

⁵¹ *P. Oxy.* LI. 3612 (AD 271–5); *P. Mert.* II. 90 (AD 310–11). See Lewis (1997: 23–4).

⁵² See Bowman (1971: 69–82).

therefore, looking at considerable change in the fourth century, which fits a general picture of changes in administration at this time.⁵³

Concomitant with all this is the development of the provision of ships into a liturgy. Again in the literature this is assumed, but, if it happened, it happened late. There is no evidence before AD 247.⁵⁴

Indeed, these liturgies cast light on other aspects of Nile river transport and the operation of the administration of Neapolis, including a range of matters such as irregular levies of goods and supplying the army. These will be discussed in due course, after the basic operational details of the transport of tax grain have been highlighted.

It is clear that there was an intensification of transport during and immediately after the harvest. A general direction for the transport of grain came from the prefect, and from the office of the procurator of Neapolis.⁵⁵ The local operation was directed by the *strategoi* at nome level, once they had received the prefect's general *epistagma*. Good evidence for the process is provided by a papyrus from Oxyrhynchus, dating to AD 211:

To Didymus *strategos* of the Oxyrhynchite Nome, from Poseidonius also called Triadelphus, master of 8 ships carrying 40,000 *artabas* in the administration of Neapolis. I have received and had measured out to me by Dioscorus son of Annophris and Didymus son of Pausiris, *sitologoi* of the Psobthis district in the lower toparchy, the amount ordered me by you and Horion also called Apion, royal scribe of the said nome, in accordance with the message [ἐξ ἀποστόλου] of his excellency the procurator of Neapolis from the public granaries of the said village sent to the river Tomis of wheat from the produce of the past 19th year of our lords the Emperors Antoninus and Geta Pii Augusti, unadulterated, with no admixture of earth or barley, untrdden and sifted, including a percentage of 1.5 *artabas*... thousand eight hundred and forty *artabas*, total [.]840 art., by the public measure... according to the prescribed measurement... which I will carry to Alexandria and deliver to the officials at the administration safely, free of all risk and damage by ship... This receipt is valid, there being three copies of it, of which I have issued two to you the *strategos*, and one to the *sitologoi*.⁵⁶

This is a receipt from the *naukleros* to the *strategos* and *sitologoi*, and such documents form the bulk of our evidence.⁵⁷ They are usually provided by the *naukleros*, but sometimes through *epiplooi* (in effect 'cargo supervisors'), who

⁵³ See now Sijpesteijn and Worp (2011); *P. Mich.* XX, *passim*.

⁵⁴ *P. Oxy.* XII 1418. No *naukleria* finds its way into Lewis's list of compulsory public services, which is telling in itself. It is accepted by Meyer-Termeer (1978: 6–7), and followed by Sirks (1991: 140–1).

⁵⁵ See, e.g. *PSI* IX. 1053 (second or third century), an order for the transport of grain from a list of villages in a toparchy to begin to transport grain of the current year. For Gaul, cf. Fulford, Chapter 10, this volume.

⁵⁶ *P. Oxy.* X 1259 (*BL* VIII 243; Sijpesteijn 1982: 154).

⁵⁷ The texts are listed by Meyer-Termeer (1978), to which add the list in *P. Köln* X. 416.

were often soldiers in the first century AD, but were civilians after this, possibly becoming liturgical posts under Trajan.⁵⁸ This marks a departure from the pattern of a late development of the *naukleria* as a liturgy. This was really more part of a centralization of the organization of transport, but very low-level tasks, different in nature from supplying ships, and more akin to compulsory labour, had become liturgies earlier. Central organization is clear. The *strategoï* were responsible to the prefect (through the procurator) for the provision of the amount of tax grain demanded from their nomes. The *strategoï* were further required to organize the transport of grain from threshing floors, and to coordinate with the *sitologoi* for the further transport of grain to harbours. At these harbours *naukleroi* received the grain, issued receipts, loaded it, and were responsible, often through the *kubernetes*, for the transport of grain to Alexandria. The role of the *epiploos* was the care of the cargo, to ensure that it was not adulterated in any way, and to present it to the administration in Neapolis.

It is clear that the amount of grain to be transported by the *naukleros* on his ships had been predetermined, but did not represent the full capacity of his ships. In *P. Giss* I. 11, it is clear that the procurator appointed *naukleroi* to particular nomes (in this case, Papeireis asked for the Arsinoite), so this too was predetermined. So too must have been the particular ports to which the grain was sent. In this case the grain was sent to the Tomis canal (which ran through the northern part of the Oxyrhynchite Nome into the Herakleopolite Nome and thence to join the river). This was because the village of Psobthis lay closer to the canal than the main river. Other similar documents show different ports being used. For example, in *P. Oxy.* XVII. 2125 of AD 220–1, the *naukleros* received grain at the port of Satyrus on the Nile, from villages in the Sko district of the nome, which lay closer to the river than the canal.⁵⁹ Although not surprising, this increased the complexity of arrangements for transport considerably.

We have interesting evidence for the receipt of grain by *naukleroi* at ports in the Oxyrhynchite Nome, and some idea of the number of ships involved in the process. It also shows the complexity of organization, and the small time frame in which the loading took place. A good number of receipts issued by *naukleroi*, but one Oxyrhynchus papyrus in particular, provide valuable evidence for how the grain arrived at harbours.⁶⁰ It preserves the usual shipper's receipt, but, unusually, details of the convoys of animals as they arrived for loading and a number of ships under the *naukleros*' control. It also shows that,

⁵⁸ See especially *P. Oxy.* XXXIII. 2670 (AD 127); *P. Oxy. Hels.* 20 (AD 138) and *P. Petaus* 55–8; Swiderek (1969–70); Frösén (1986). Soldiers: *P. Oxy. Hels.* 14 (first century); *P. Oxy.* II. 276 (AD 77). Trajan, see Schwartz (1948: 185) and Frösén (1980–1).

⁵⁹ Talbert (2000: 75).

⁶⁰ *P. Oxy.* XXXIII. 2670 (AD 127). The *editio princeps* restores the lacuna in l.1 with *κυβερνήτη]ς*, but it must be *ναύκληρο]ς* (cf. *BL* XI. 163).

Table 6.2. Deliveries of *artabas* of grain by animal convoy, for loading onto river boats, AD 127

Date: Choiak	Convoys (<i>phorai</i>)	Total (<i>artabas</i>)
9	18	1,056
10	20	1,161
11	23?	12[.]1
12	25	1,311
13	27	1,314
14	28	1,314
15	22?	—
16	11	474
17	10	424

Source: *P. Oxy.* XXXIII. 2670.

although there was an intensification of river transport during the harvest season, grain was transported throughout the year as an ongoing process, as the text is dated 6 December AD 127, but concerns grain from two years previously.⁶¹ Over a period of nine days, from Choiak 9 to 17, a little over 10,000 *artabas* are loaded. The text details the number of convoys, how many *artabas* were delivered in sacks, followed by a total for the day, for each day (Table 6.2).

The pattern of transport, an increasing intensity before tailing off, suggests that the purpose was to clear the granaries, rather than fill the ships to their full capacity. As in *P. Giss.* I. 11, the idea was to ‘make a clean sweep of the nome’.⁶² That there was a predetermined system for clearing granaries is strongly suggested by another Oxyrhynchus document, which mentions a ‘peg system’ (τὸ κατὰ πάσσαλον), where, as I have suggested elsewhere, the granaries near the Tomis Canal were cleared first, beginning with those in the south, on a timetable dependent on the rise of the Nile.⁶³ Whether this was a system that was unique to the Oxyrhynchite Nome is not clear, but other evidence points to the likelihood of similar organization elsewhere.⁶⁴ The fact that there was central regulation and control from Neapolis in itself points towards a uniform system throughout Egypt.

The concentration of transport into a short period after harvest, and the central administration of transport, is further suggested by another Oxyrhynchus papyrus.⁶⁵ This is a list of vessels loaded for departure from a port in the Oxyrhynchite Nome. Details of the ships’ captains are given, along with the

⁶¹ Receipts are dated to every month except Tybi, Pharmouthi, and Pachon.

⁶² Further suggested by ships travelling in convoy: see *P. Princ.* II. 26 (c. AD 154), in which we see a *kubernetes* in charge of three grain ships carrying 8,627½ art. of wheat.

⁶³ *P. Oxy.* XXII. 2341 (AD 208) with Adams (2007: 188–90).

⁶⁴ *P. Hamb.* I. 17 (AD 210) suggests a similar requirement to empty granaries in the Fayum.

⁶⁵ *P. Oxy.* XXIV. 2415 (to be dated to the fourth century, cf. *BL* XI. 162).

total amount of *artabas*. In the case of larger ships, the estimated capacity is given, but it is interesting that in all cases the capacity is exceeded, sometimes considerably. Importantly, also, the home ports of the vessels are given, and it is clear that vessels came from many nomes: Hypselite, Lykopolite, Upper Kynopolite, Oxyrhynchite, Phthenote, Metelite, Leontopolite, Herakleopolite, Apollonopolite, Arsinoite, and Lower Diospolite, Elearchia, and Nilopolite.

The arrangements of transport by river are carefully recorded in the legal contracts between the state and *naukleroi*, and these have been exhaustively studied by Meyer-Termier.⁶⁶ There is little need to rehearse the legal aspects of the documents here, and it suffices to say that the texts name the origins of the orders, how much grain was to be transported, details of the number of ships, the *naukleroi* and *kubernetai*, and that the wheat was measured with the public measure and was unadulterated.

Upon arrival in Alexandria, the grain was transferred (*παράδοσις*) from the authority of the *naukleroi* and *epiplooi* for testing for impurities. These tests supplement those carried out when the ships were loaded in the *chora*. We know that officials were appointed to clean and measure wheat, and, although there is no evidence earlier than the third century that samples of the wheat were sent to the *cheirismos* in Neapolis, the presence of these officials suggests that this system was in practice earlier. A second-century text from Oxyrhynchus provides interest:

Antonius Aelianus to the *strategos* of the Diospolite Nome in the Thebaid, greeting. Since the cargo dispatched from the nome under you in charge of [...] ausis son of Sipos and his companions, accounting to 2,000 *artabas* of wheat, appeared at the weighing of the samples to have been adulterated, I order that the amount of barley and earth in half an *artaba* of it should be ascertained, and it proved to be under measure by 2 per cent of barley and ½ per cent of earth. Accordingly exact at your own risk from the *sitologoi* who shipped the wheat the difference on the whole amount of corn, 50¾ *artabas* of wheat, and the extra payments and other expenses, and when you have added this total to the account of the *cheirismos* let me know. 29th year. Phaophi 30.⁶⁷

The exact nature of the *cheirismos* in Neapolis, owing to a lack of any archaeological evidence, is not easy to establish with certainty, but the texts

⁶⁶ Meyer-Termier (1978).

⁶⁷ *P. Oxy.* IV. 708 (AD 188), l. 13 *χρ(ις)μοῦ* as *W. Chr.* 432 (*BL* I. 326). The recto of this document contains an account of corn, which records large amounts—168,486½ 1/48 *artabas*. Antonius Aelianus' official rank is not given, but he appears as a *procurator Neas Poleos* in Pavis d'Escurac (1976: 443). See *P. Oxy.* X. 1254 (AD 260) for the appointment of an official tasked with carrying samples of wheat (*δείγμα*) to Alexandria (also *P. Strasb.* I. 31). In *P. Fay.* 23 (a) (second century), a list of persons qualified for office has an official *ἐπὶ καθάρσεως τοῦ δημοσίου πυροῦ*. It seems that, as we would expect, this had become a liturgy by the third century. See also Sijpesteijn (1994).

provide some notion of what it must have been like.⁶⁸ It is clear that the name Neapolis refers to a particular part of the harbours of Alexandria, lying almost certainly on the landward side in Lake Mareotis: one papyrus mentions an *emporion*.⁶⁹ The word *cheirismos* must refer to the body of officials and its bureaucratic processes, rather than to a physical place, for in our papyri a distinction is sometimes made between the *cheirismos* and the physical attributes of Neapolis. Occasionally shiploads are destined more specifically to the granaries (*thesauroi*) of Neapolis.⁷⁰ Interestingly, the Greek rendition of *horrea* came to be used, suggesting perhaps increased centralization of the organization of the *annona* and close Roman supervision.⁷¹ It seems that the responsibility of the *procurator Neas Poleos* lay solely with the administration of the *annona* destined for Rome. The province of the *procurator ad Mercurium* subsequently lay with the supply of food and other resources to Alexandria itself, and therefore it is likely that the stores and wharves associated with his role lay on the landward side of Mareotis.⁷²

TRANSPORT OF MILITARY SUPPLIES

One aspect of transport that figures highly in our evidence is the transport of military supplies.⁷³ This was a significant imposition on local communities. It is clear that military supply was not just on a local basis, but involved the transport of supplies over considerable distance. Its organization went through significant change over the Roman period. In the early first century AD it is likely that transport was undertaken under contract with the state, but that in the course of the first century, with introduction of the liturgical system, it became a liturgy, which in the third century came under the general control of town councils. It placed an additional burden on shipowners and their crews, and, unlike the transport of tax grain after the harvest, which could be anticipated and planned for, the requisition of ships (as with transport animals) could take place at any time in the year and would clearly impact on private interests.⁷⁴ Additionally, requisition could be long term, judging by a text mentioning a 'provisions ship', most likely requisitioned and seemingly engaged in regular supply.⁷⁵

⁶⁸ Large numbers of structures have been revealed by survey, which could be store buildings, but they have not been excavated at this point (pers. comm., Dr Lucy Blue).

⁶⁹ *P. Laur.* IV. 184, admittedly a seventh-century text.

⁷⁰ *Stud. Pal.* XX. 32.

⁷¹ *P. Lond.* V. 1823 (AD 335–40); *P. Stras.* VII. 654 (AD 425–50); *SB XVIII.* 13,948 (AD 407).

⁷² On the *procurator ad Mercurium*, see now Beutler-Kränzl (2007).

⁷³ For a full treatment, see Mitthof (2001); also Adams (1999).

⁷⁴ *BGU XVI.* 2644 (AD 4).

⁷⁵ *O. Florida* 14.

PRIVATE TRANSPORT BY RIVER

There is a good deal less evidence for private transport by river, which is probably less an accident of preservation than a reflection of less formal structures. But what we possess affords a glimpse at what must have been a busy scene, certainly at particular times of the agricultural year. It is pretty certain that most *metro-poleis* were supplied with food largely from their associated nomes, but it is equally clear that large quantities of commodities were transported long distances. In particular, Alexandria, the largest city, with a population of around 500,000, was a large consumer of food and other goods from the *chora*.⁷⁶ Alexandria's population alone would have required some 4,000,000 *artabas* of wheat annually, and we know that at some point there was a corn dole that demanded regular supply.⁷⁷ It is likely that much of this came from the exceedingly fertile Delta region, but there are glimpses in our evidence to suggest that much also came from further afield.⁷⁸ The cities of Hermopolis, Arsinoe, and Oxyrhynchus may have had populations of between 30,000–45,000, requiring on average, at the upper figure, some 360,000 *artabas* of grain each per annum. Perplexing questions arise. What was the source of these commodities? Did landowners in the *chora* send their surplus produce, and if so, how and through whom? How might such activities map onto the economic behaviour of large estates? Who were the shippers? Did landowners also own ships? Surely this latter must have been the case. Can we plot the activities of some individuals in order to establish some sort of model of activity?

A good starting point is a document from Oxyrhynchus dating to around AD 63, which is worth setting out in full:⁷⁹

Anoubas son of Hermias, from Hyphanton in the Hermopolite Nome, Persian of the *epigone*, skipper of the river boat of 500 *artabas* burden of Marcus Cornelius Torullus, centurion, has chartered to Polytimus, slave of Gaius Norbanus Ptolemaeus, the aforesaid boat with her crew,⁸⁰ on which he will load, from whichever harbours in the Hermopolite Nome he may choose, 500 *artabas* of *arakos* [chickling vetch] according to the measure of the temple of Athena, and for every 100 *artabas* 12.5 *artabas* free of freight charge, so as to deliver [the cargo] to

⁷⁶ Population: Rathbone (1990); Bagnall and Frier (1994: 51–7); on food supply, see Sharp (1998), and, on Oxyrhynchus specifically, Sharp (2007).

⁷⁷ Based on an average annual consumption of 8 art., cf. Rathbone (1990). Thompson (1983) offers lower figures of average consumption and similar calculations, but based on different population figures. There is still no real consensus on population figures for Egypt: see Bowman (2011).

⁷⁸ Alston (1997) suggests that most transport of goods took place at a local level, and that the intensity of transport reduced in proportion to greater distance. That is all very well, but runs the risk of underestimating the volume of long-distance transport, and to my mind is pessimistic.

⁷⁹ P. Oxy. XLV. 3250.

⁸⁰ *ὀν τῇ ναυτείᾳ*: the editor translates as 'with her equipment?'. But it must mean 'with her crew', cf. BL IX. 201.

Acanthon and Lile in the Oxyrhynchite Nome, at the freight charge agreed upon between them of 28 dr. of silver per 100 *artabas* so that the total is 140 dr.; of which Anoubas acknowledges that he has received from Polytimus on the spot 72 dr., but the remaining 68 dr. of the freight charge Polytimus is to pay Anoubas on the unloading of the *arakos*. Therefore Anoubas is to provide the boat ready for sailing up the river on the 21st of the present month of Sebastos, and having arrived at the harbours of the Hermopolite Nome, and after having embarked and received the *arakos*, he is to sail away without delay, with all security, supplying for himself on the journeys up and down the river full and complete supplies for the ship and sufficient crew. He is not to be permitted to sail by night nor (to weigh anchor) in foul weather (and?) he is to lay up daily at the safest harbours, the tenders at Hermopolis being at the expense of Anoubas, but those at Oxyrhynchus at the expense of Polytimus. Let Anoubas deliver the *arakos* to Polytimus or his representatives at the harbour of Lile and Acanthon, using whatever measure he receives by. Whatever shall emerge from the hold is to belong to Polytimus or Anoubas shall pay him as the price of each (*artaba*)...

This contract contains the usual provisions for carriage of cargoes: limitations on sailing at night, and the use of safe anchorages, as well as the furnishing of sufficient crew and their supplies. It was also usual for freight charges to be paid in an advance instalment, and the final payment on delivery.⁸¹ But a number of details require attention. Anoubas is the skipper of a boat belonging to the centurion M. Cornelius Torullus.⁸² The contract is for the carriage of *arakos* (chickling vetch), probably for animal fodder, from Hermopolis to, it is to be assumed, the property under the control of C. Norbanus Ptolemaeus, who was probably the *iuridicus* and *idios logos*, senior equestrian offices of Roman Egypt. It is possible that this was an imperial estate, as it is unlikely that Norbanus owned land in the Oxyrhynchite. Interestingly, Anoubas is responsible for acquiring the *arakos* 'at whatever harbours of the Hermopolite Nome he may choose'. The question is how? The fact that Anoubas could go to any harbours, perhaps relying on his local knowledge, hailing as he did from that nome, suggests that he was not dealing with agents of Norbanus but that he would have purchased the *arakos*, and the text implies that he was not restricted to doing so in a single harbour, so long as he embarked the full cargo. Was he given the purchase price, or did he claim the cost back with receipts? Was he instructed to find the best price possible? Finally, in terms of the percentage cost of transport against the value of the cargo, we can say little, as the price of *arakos* is not well attested.

If we accept that Anoubas was free to buy *arakos* at any ports he chose, it is likely he was looking for the best price. A small number of other documents hints at this: from the Ptolemaic period, a letter from one Sosas to Zenon, the

⁸¹ P. Ross Georg. II. 18 (AD 139–40); P. Lond. III. 948 (AD 236).

⁸² See P. Lond. II. 256, p. 99 (AD 15) = W. Chr. 443, where a discharged soldier is skipper.

manager of the estate of Apollonius the *dioiketes*, suggests that Sosas had been sailing up and down the Nile looking for the best price for wheat; and letters from the archive of Athenodorus point to the same thing, the first criticizes Athenodorus for his laziness, which will result in a failure to secure the best price for wheat, and another gives information about local measures of grain and their value.⁸³

Another text preserves a freight contract between a skipper from the Antaeopolite Nome and a town councillor from the city of Ptolemais Euergetis, Areios, in the Fayum to transport 250 *artabas* of *lachanospermon* (vegetable seed) from the Harbour of the Sacred Grove in Ptolemais to Oxyrhynchus.⁸⁴ The rate was set at 100 dr., of which 40 dr. was paid in advance.⁸⁵ In common with other private freight contracts, a *keramion* of wine was included as a gratuity for the crew. The contract also stipulates that the loading and transport were to take two days, and that the ship would wait for four days at Oxyrhynchus, presumably while the cargo was unloaded and checked. If the ship were delayed any longer than four days, an additional payment of 16 dr. per day would be made. Here, at least, we can establish some idea of cost: a little less than 2 per cent of the cargo's value.⁸⁶ It is unclear from the text whether the cargo was for sale at the market in Oxyrhynchus or for consumption on Areios' estates in the Oxyrhynchite; he was wealthy and well connected, the relative of the *oikonomos* Herakleides, but it is likely that crops such as *arakos* and *lachanospermon* were of secondary importance, used more for fodder, and are more likely to be consumed on estates than sold.⁸⁷ The contract suggests that the skipper of the ship would be keen to unload his cargo without delay, hence the clause concerning the extra payment, as his ship was profitable only when loaded and in employ. Most skippers, no doubt, would have been keen to secure a return cargo, if possible, but only two documents record this.

The first of these is from Oxyrhynchus, and is a contract between three shippers and a third party for the transport of wheat from there to Euergetis in the Kynopolite Nome, where a cargo of wine would be carried back to Oxyrhynchus.⁸⁸ Unfortunately other details of the shipment are lost, except that a supervisor (*epiploos*) was on board, and that a *keramion* of wine was

⁸³ *P. Mich. Zen.* 28 (256 BC); *BGU XVI.* 2601 (9 BC) and 2611 (10 BC).

⁸⁴ *P. Lond.* III. 948 p. 219 (AD 236) = *M. Chr.* 341.

⁸⁵ Payment in two instalments is a feature of private freight contracts; see Meyer-Termier (1978: 12).

⁸⁶ Drexhage (1991: 34) has *lachanospermon* at 18–20 dr. per *artaba* in the early third century.

⁸⁷ Rathbone (1991: 307).

⁸⁸ *P. Oxy.* XLIX. 3484 (AD 27–33). The editor suggests that it may be state transport, but the nature of the return journey hints at a level of organization too complex to be acceptable, and the gratuity clause is rather informal in nature. Equally, the presence of an *epiploos* and the early date of the document may indicate state transport, but a more informal approach in the early Roman period, to the much more regulated transport seen later. The return journey, however, tips the balance in favour of a private contract.

included as a gratuity 'for the lads' and that payment was made in two instalments. The first instalment paid for transport was 300 dr., a considerable sum suggesting that three ships were used, but there is not enough of the text surviving to offer a full breakdown of the transport charges. The second text also relates to transport from Oxyrhynchus.⁸⁹ It is a lease of a ship (*skaphopakton*) belonging to two men from the Oxyrhynchite Nome, Aurelius Serenus and Aurelius Tryphon, to another man, Aurelius Demetrios, for the purposes of a return voyage to Tebennythis in the Hermopolite Nome.⁹⁰ The charge for the hire of the ship was 500 silver drachmas, plus a *metretes* of wine, ten *spadia* of veal, ten *metretai* of olive oil, and three of radish oil. No doubt these were victuals for the crew. The owners have to have the ship ready for loading on the 2nd Phaophi, roughly a month from the date of the agreement. They have to ensure that the cargo is embarked safely, then sail with the lessee to Tebennythis, where they will wait until the 10th Phaophi, after which they will return to Oxyrhynchus, presumably with another load, as during this period of waiting it would no doubt have been embarked. There are several perplexing matters. We know that the vessel was 15 cubits long, but we do not know its capacity, and it is unlikely that a 'normal' cargo capacity could be established for any type of vessel. We do not know what the cargo on each leg of the voyage was, so it is impossible to establish the freight rate as a percentage of the cargo or to understand how it was worked out. Finally, the owners receive money for the passage of the four passengers, including the lessee. It appears, then, that the lessee and his associates have hired the ship for a specific trading venture, perhaps because he does not have his own.

These documents raise questions about commercial activity. We would like to know more about the operation of large landowners, and how they moved the produce of their estates around. It seems likely that some of the produce, subsidiary crops such as fodder crops, was destined for consumption on their own estates, but what of primary crops? There is some evidence, albeit slight, from the estate of Aurelius Appianus for the transport and trade of wheat and wine. Two fragmentary texts preserve parts of an account of costs and tax payments for a voyage from Alexandria to the Arsinoite Nome. It is possible that it concerned the import of wine, for customs duty is paid on jars of Tmolan wine.⁹¹ Wheat from the estate seems also to have been marketed in Alexandria, for a number of texts record the quick delivery by donkeys of wheat to harbours in the Fayum, for onward transport to Alexandria.⁹²

⁸⁹ SB XIV. 11552 (AD 221).

⁹⁰ Other leases are *M. Chr.* 341 (AD 236); *P. Lond.* V. 1714 (AD 570).

⁹¹ *P. Fay.* 103 and *P. Flor.* III. 335 (AD 259) = SB VI. 9,365, with Rathbone (1991: 305–6). On the import of wine, see Rathbone (1983a), and now *P. Bingen* 77 (second century) for wine coming into Egypt.

⁹² Rathbone (1991: 316).

Finally, there is some evidence to suggest that Appianus may have ordered the construction of ships, providing 'a valuable indication of direct investment by these large landowners in mercantile activities'.⁹³

Such transport activities as those of Appianus might be further illustrated by a small group of accounts from Oxyrhynchus concerning the transport of goods (wheat and beans) through Memphis to Alexandria. Memphis, as well as being a major market in its own right, was also a transit point on the Nile and a threshold for the payment of customs duties—in this case the 'Harbour of Memphis Tax'.⁹⁴ In these cases the fact that taxes are paid suggests private enterprise, as individuals engaged on state business, according to a law of Hadrian, were not required to pay duties.⁹⁵ The accounts are instructive, for they provide evidence not only of the transport rates for the cargo, but also for the ancillary expenses incurred in such transactions. The first relates to two ships for cargoes of 550 and 540 *artabas* respectively. The editors assume that the amount of 44 and 43 dr. respectively is the basic rate of transport, but this must surely be wrong, and these are accounts of expenditure, on my interpretation, kept by a ship's captain for an estate-owner such as Appianus, who was transporting his own produce on his own ships. The rate of the Harbour of Memphis tax was half an *obol* per *artaba*, and this corresponds very closely to these amounts.⁹⁶ The other expenses are almost identical for each ship, and included repairs, tax payments, examination dues, payments to bankers, interpreters, clerks, and guards, as well as a rudder in each case, and finally fees for receipts and affidavits. The cost of transport overall should not be measured against the rate per *artaba*, but rather on the market price obtained. We have good evidence of the price of wheat over time, which has been studied by Dominic Rathbone.⁹⁷ In the period to which these texts belong, the average price for wheat seems to have been between 6 and 12 dr. per *artaba*. For the sake of argument, if we suggest that the wheat in the first ship sold at 10 dr. per *artaba*, which make a total of 5,500 dr., and assume that the transport rate was 21 dr. per 100 *artabas*, as suggested by a roughly contemporary text, the total transport fee would be 115.5 dr., plus expenses of 91 dr. giving a total of 206.5 dr. This suggests that transport and duty made up some 3.75 per cent of the cargo's value.⁹⁸ This accords with other evidence, for example, from the

⁹³ *P. Flor.* I. 69 (AD 261); Rathbone (1991: 366–7, quotation from p. 367).

⁹⁴ See Sijpesteijn (1987 *passim*), and now Cottier (2005; 2010).

⁹⁵ *D.* 39. 4.9.7–8 (Paulus); *D.* 49. 14.6.1 (Ulpianus).

⁹⁶ *P. Oxy.* XIV. 1650 (late first or early second century). On the tax, see Sijpesteijn (1987), with *P. Customs* 110 and 226, which give rates of tax. See Sharp (1999: 215).

⁹⁷ Rathbone (1997).

⁹⁸ If we accept, as the editors do, that the amount of duty paid was actually the freight rate, this would give a rate of only 8 dr. per 100 *artabas*, which, compared with other evidence, certainly seems too low.

archive of Athenodorus already discussed, where a very similar rate of 4 per cent is charged for transport.⁹⁹

The next account concerns the transport of beans, for a similar sized cargo, paying a slightly higher rate of tax.¹⁰⁰ Another document preserves an account of the transport of 400 jars of wine, but some extra payments, including one to a *beneficarius*, are included, as well as 14 dr. 2 *obols* for timber.¹⁰¹ As far as the trade in wine is concerned, another document preserves the contract for the transport of 200 empty Caesarean jars; possibly it was cheaper to import wine jars than to have them made locally.¹⁰² Finally, a perplexing document records the full range of transport of barley from Psobthis in the Oxyrhynchite Nome to Alexandria, although a reconstruction is not possible.¹⁰³ Transport by barge was charged at 299 dr., payments were made for Desert Guard tax at 772 dr., and another tax at 1 talent, 897 dr., plus payments to camel drivers at 216 dr., and for the final freightage to Alexandria, with a total of 1 talent, 2,712 dr. It is tempting to think of overland transport, perhaps even from the oases of the Western Desert, for transshipment by barge, before transshipment at a Nile port for transport to Alexandria.

A number of points need making. First, the long-distance transport of goods entailed the payment of a range of expenses above and beyond the agreed rate for transport. Extra charges and expenses were common and written into contracts. One text in particular makes it clear that these expenses would be met by the lessee; 'the taxes and expenses and expenditures on the river and harbour dues and costs for the timber shall be paid by me, who have hired the ship'.¹⁰⁴ This explains why such detailed accounts of expenditure were kept, presumably with receipts, by ships' captains, as already discussed. No link between freight contracts and the accounts just discussed, or their relation to the many customs receipts we have, has been drawn in the scholarly literature, but surely they must be related; when the accounts were settled at the end of a particular voyage, the ship's captain would need to account for his expenditure and prove it by showing his receipts.

The overall scale of private shipping on the Nile is not easily quantifiable: it is usually the case that essential details such as the points of origin or destination, or amounts of produce or transport rates, are missing.¹⁰⁵ However, the transport of wheat may allow for some quantification, at least in giving some notion of scale for its transport in private commercial activity. It may also be possible to get some idea of ship capacity, even though, as mentioned above, no 'normal' cargo size existed, and also to get a picture of

⁹⁹ BGU XVI. 2611. ¹⁰⁰ P. Oxy. XIV. 1650a (late first/early second century).

¹⁰¹ P. Oxy. XIV. 1651 (third century); on timber, see Lewis (1960).

¹⁰² P. Oxy. Hels. 37 (AD 176).

¹⁰³ P. Oxy. XIV. 1652 (third century). ¹⁰⁴ P. Oxy. Hels. 37.

¹⁰⁵ Thompson (1983) points out similar problems for the Ptolemaic period.

Table 6.3. Nile ship capacities: stated burden and actual loadings with grain cargoes, late third century AD

Ship origin (nome)	Stated burden (<i>artabas</i>)	Actual burden (<i>artabas</i>)	Difference (%)	Line ref.
Hypselite	3,100	3,490	12.5	ii. 23–4
Lykopolite	2,600	2,860	10	ii. 25–6
<i>apo tou Megalou Choriou</i>	2,700	3,000	11	ii. 27–8
Kynopolite	3,300	3,630	10	ii. 29–30
Oxyrhynchite	1,000	1,022	0.2	ii. 31–2
<i>apo tou Methleitou ?</i>	1,800	1,918	6.5	ii. 33–4
Oxyrhynchite	1,500	1,500	0	ii. 35
Lykopolite	1,400	1,556	11.6	ii. 36–7
Leontopolite	2,200	2,447	11.2	ii. 38–9
Lykopolite	1,550	1,705	10	ii. 40–1
Prosopite	850	945		iii. 43
<i>tes Elearxias?</i>	505	505	0	iii. 44–5
Herakleopolite	505	505	0	iii. 46–7
Apollonopolite	1,100	1,110	0.1	iii. 48–9
Arsinoite	1,015	1,015	0	iii. 50–1
Oxyrhynchite	1,000	1,000	0	iii. 52–3
Oxyrhynchite	1,000	1,137	11.3	iii. 54–5
Psthenite	402	402	0	iii. 56–7
Diospolite	502	502	0	iii. 58–9
Oxyrhynchite	1,000	1,016	0.16	iii. 60–1
Oxyrhynchite	1,000	1,016	0.16	iii. 62–3
?	500	500	0	iii. 64
?	600	600	0	iii. 65

Source: *P. Oxy.* XXIV. 2415, cols ii, iii.

the pattern of deliberate overloading of ships.¹⁰⁶ The upper limit of capacity seems usually to have been around 5,000 *artabas*; although larger ships are attested, these are likely to have been exceptions.¹⁰⁷ A late-third-century document from Oxyrhynchus, already discussed in relation to state grain transport, provides excellent evidence for the different sizes of grain ships, and for tendencies to overload (Table 6.3).¹⁰⁸ We need to bear in mind that the

¹⁰⁶ See *P. Oxy.* LXVI. 4526 (AD 69/70?). In this document, the stated capacity of ships is noted, but in each case the ships carry an extra 6%.

¹⁰⁷ See, e.g. *P. Tebt.* III. ii. 856 (c.171 BC), giving the details of twenty-two ships ranging from 9,000 to 18,000 *artabas*. For a full discussion, see Poll (1996), who notes that the capacity was always expressed in multiples of 50 for ships over 100 *artabas* burden, and in multiples of 10 for those under 100 *artabas*. Cooper (2011) gives the tonnage of ships on the Nile according to the Napoleonic *Description d'Égypte*, which ranged, in Upper Egypt, between 6 and 200 tonnes. This accords with the papyrological evidence: a ship of 3,500 *artabas* burden would be roughly 140 tonnes burden. This raises questions, which cannot be answered here, about ship draft and seasonal navigability.

¹⁰⁸ *P. Oxy.* XXIV. 2415 (late third century).

ships engaged in the transport of tax grain and those engaged in private commercial activity were one and the same.

We have already discussed the overall wheat production of Egypt in relation to tax grain, where approximately 5 million *artabas* were transported from Egypt to Rome. Of the remaining 40 million *artabas* that it is estimated were produced in an average year, about 4.5 or 5 million were set aside for seed, about 30 million were consumed, which left about 5 million (at the very most 15) destined for markets locally.¹⁰⁹ The ships engaged in the transport of tax grain, as we have seen, were privately owned, and were appointed to this transport by the state at specific times of the year. When not engaged in this, they were free to engage in other contracts for transport or transport of their owner's own produce. It is difficult to get any accurate picture of the volume of Nile shipping, largely because there was no average size of ship, but we can assume considerable traffic, peaking in the period after the harvest. We can assume that small lighters, barges, where there were navigable canals, or pack animals were used for more local transport within nomes. Given that many other cargoes were carried, there seems to be no way of estimating the number of ships on the Nile, and we can only say that ownership was probably restricted to the most wealthy members of society: large landowners, city councillors, perhaps state officials, representing around the top 2 per cent of the population.

Who were the *naukleroi*?

While there must have been a large number of river vessels of different shapes and sizes, it is likely that the larger ships involved in the transport of substantial cargoes were owned by wealthy individuals. As Roger Bagnall has pointed out, shipowners were among the 'major holders of all forms of wealth and power in society', and this was as true for Egypt as elsewhere in the Roman Empire.¹¹⁰ In the Ptolemaic period, it was always the case that the *naukleros* acted as a broker for the ship's owner; *naukleroi* seem never to have been the owners themselves.¹¹¹ In the Roman period, it is quite rare in the documents that the exact relationship between shipowners, *naukleroi*, and *kubernetai* is clear, but it is the case that *naukleroi* were not always brokers acting on behalf of owners, but could be owners in their own right.¹¹² With smaller vessels, often we are dealing with 'owner-operators': in these cases, a phrase such as 'skipper of his own boat' is often deployed.¹¹³ In other cases, it is clear that the *naukleros* acts as a broker for the ship's owner, and, if this is the case, we would

¹⁰⁹ Figures after Rathbone (1997: 190–1).

¹¹⁰ Bagnall (1993: 36–7), cited in *P. Oxy.* LXVIII. 4685 intro. See also Gonis (2003).

¹¹¹ Thompson (1983: 66). ¹¹² Rougé (1966: 232).

¹¹³ E.g. *P. Col.* I, recto 4, col. x (AD 155); *P. Lond.* III. 948 (AD 236); with Rougé (1966: 232).

certainly like to know more of the freedom that the *naukleros* had to engage in contracting the vessels for which he was responsible.¹¹⁴ Given that ships were expensive to buy and maintain, and that crews had to be employed, a *naukleros* no doubt had to be proactive, not only in engaging in state contracts, but also in private shipping.¹¹⁵

We have very little information on how much ships may have cost. There is a large chronological spread of evidence, and we should bear in mind the rise in prices over time, especially in the third century. However, it is still the case that ships represented a considerable investment.¹¹⁶ The earliest document, dating to 10 BC, concerns a *σκάφη ξυληγός* measuring 30 cubits by 11, sold on lease (*μισθοπρασία*) for a period of 50 years for 300 dr., and several other documents show similarities.¹¹⁷ A text of AD 212 preserves details of a sale in the form of a lease of a ship of 400 *artabas* burden for the sum of 1 talent, 2,000 dr., for a period of sixty years, which included an extensive list of ship's equipment and a small skiff as a tender; the much greater price may be an indication of a larger vessel. It also shows a significant mobility on the part of the protagonists, the seller a citizen of Antinoopolis, the buyer of Panopolis, which raises questions about how such sales were organized—perhaps through word of mouth rather than a market.¹¹⁸ Finally, a papyrus from Oxyrhynchus dating to AD 291 preserves the sale through lease of a ship of 70 *artabas* burden for fifty years, for the sum (a single payment—*φόρος*) of 3 talents, 3,000 silver dr.¹¹⁹ The question that naturally follows is why the ships were leased over a long term rather than sold outright. It is possible that ownership of ships was attached to privileges, which may have resembled the privileges extended through legislation, from the time of Claudius on, to owners of ships engaged in the transport of grain.¹²⁰

At any rate, although the sums of money involved in leases are not very great in the evidence we have, they still represent a major capital outlay, which may have equated to, on Bagnall's reckoning, the equivalent of six years of legionary pay, or have been roughly equivalent in value to the cargo carried in

¹¹⁴ See Vélissaropoulos (1980: 49); Aubert (1994: 213), citing Hassall (1978), who demonstrates the same pattern in Roman Britain and the Rhine provinces.

¹¹⁵ Shipping contracts often included clauses concerning outfitting and the provision of masts. On rental of a mast, see *P. Corn.* 45 (AD 299), for ship repairs see *P. Oxy.* XIV. 1752 (AD 378) and *P. Oxy.* XLVIII. 3427 (second half of fourth century). See also *P. Panop. Beatty* 2 (AD 300), with Lewis (2001).

¹¹⁶ On prices, see Rathbone (1997), and, on inflation and monetization, Rathbone (1996).

¹¹⁷ *BGU* IV 1157. A similar figure of 300 dr. is preserved for a *σκάφη* in *BGU* IV 1179 (13 BC); 100 dr. for a *πλοῖον* in *P. Lond.* III 1171 (AD 212); *P. Mert.* I 19 (AD 173), 200 dr. for a *πάκτων ποτάμιον* with equipment.

¹¹⁸ *P. Lond.* III. 1164b (p. 163). Trading networks need exploration; see Manning (2011) for the Ptolemaic period, and initial comments of Alston (1997).

¹¹⁹ *P. Oxy.* XVII. 2136, with Bagnall (1993: 36).

¹²⁰ See Vélissaropoulos (1980: 273–9) for discussion.

wheat. There are indications in the papyri that shipowners were persons of some wealth. For example, among the private shipping contracts preserved in *P. Ross Georg.* II. 18 (AD 140), of the six charters recorded, at least two show that shipowners were citizens of Alexandria operating through a *naukleros*. A third-century text from Oxyrhynchus preserves a contract for the transport of wine for the *annona militaris* on a boat belonging to a man named Dionysammon, an Alexandrian citizen. Interestingly he is described as a 'linen-transporter' (λινοκαταγωγέως). It seems he specialized in the transport of linen, possibly through standing arrangements with linen producers in Oxyrhynchus, which was an important producer.¹²¹ Such specialization is suggested by another text, which, if the reading is correct, mentions a swine transporter.¹²² Linen and pigs were important commodities; the emperors Gallienus and Aurelian famously noted the importance of Egyptian flax, and pig merchants were among the very few Egyptians not to be evicted from the city of Alexandria by Caracalla, and were important in terms of military supply, so it may not be surprising to find specialization.¹²³ A final example is an inscription from the temple of Medamoud in which two women, named Aelia Isidora and Aelia Olympias, are described as 'distinguished matrons, *naukleroi*, and merchants of the Red Sea'.¹²⁴

From fourth-century Oxyrhynchus, a much more detailed picture of shippers is developing. We possess a number of lists of shippers and captains, and the evidence shows that they operated in other cities and nomes.¹²⁵ Like the three cases already mentioned, they are, for the most part, members of the municipal elite, and were often members of the town council or even imperial officials. In these lists it is common for the owners to be named, and in many cases they can be identified as known *bouleutai* or officials; they are certainly elite. Alongside the name of the owner generally comes the name of the *kubernetes*, and in these cases too it is possible to identify the captains as identical to individuals named in other documents.¹²⁶ In recently published texts from Oxyrhynchus the picture is much the same: imperial officials appear,

¹²¹ *P. Oxy.* XLIII. 3111 (AD 257). On linen manufacture, see van Minnen (1986).

¹²² *BGU* I. 92 (AD 187): [χοιρο]καταγωγέως.

¹²³ *HA* Gall. 6.9, Aur. 45; *P. Giss.* 40 = *Sel. Pap.* II. 215 (AD 215).

¹²⁴ *SEG* VIII. 703 = *SB* V. 7539. Unfortunately the text is lacunose, for the dedication is also on behalf of a man named Apollinarios, described in l.7 as ἐπαρχ[ω...]. The lacuna is big enough for six or perhaps eight letters, and two possible restorations have been offered. Rostovtzeff argues for ἐπαρχ[ω κλάσση], suggesting that he may have been prefect of the *Classis Erythraica*, and basing it on a similar *praefectus classis* mentioned in *IGRR* I. 1370 (Rostowzew 1906). The alternative offered by Jouguet, which is perhaps preferable given that the lacuna looks more like eight letters, is ἐπαρχ[ω Βερενίκη], in charge of the Eastern Desert of Egypt. What would be interesting to know is the relationship between the two women and this prefect, but it seems likely that they enjoyed his support. See Jouguet (1931: 26–7).

¹²⁵ See the list in *P. Heid.* IV. 303, intro., with Gonis (2003); Sijpesteijn and Worp. (2011).

¹²⁶ E.g. owners and captains mentioned in *P. Harr.* I. 94 (probably mid-fourth century) can be identified with individuals mentioned in *P. Oxy.* XXII. 2415.

as well as *bouleutai*. While we are certainly dealing with privileged groups, it has been suggested that perhaps we have here two distinct groups, old money and new men.¹²⁷ Equally, of course, it may be that officials were drawn from the municipal elite, and they thus formed a homogenous group.¹²⁸ Certainly, there are major differences in the organization of river transport in the fourth century from previous periods, which have already been outlined.

What is clear from this is that shipowners were among the wealthiest individuals in the province, were often state officials in their own right, or at least were well connected to the imperial administration. So from the time of Athenodorus in the Augustan period, well into the late antique period, wealthy entrepreneurs used their wealth to engage in trade and transport in a private capacity, but also contributed greatly to the Roman state's requirements for the transport of tax grain and a range of other commodities. While in some ways this must have been a burden, and in some cases interfered with their private economic pursuits, at the same time it enabled them to display their commitment to the state, wealth, and influence.

The ships' captains are more elusive.¹²⁹ They are more difficult to trace prosopographically than the owners of ships, although the fourth-century documents from Oxyrhynchus do throw some up recurring names, but often fall short of providing certain proof that we are dealing with the same individual. It is clear that *kubernetai* could and did own their own ships.¹³⁰ What we would like to know more about, however, is the relationship between shipowners and their captains. In terms of the transport of the *annona*, shipowners, we would expect, were engaged directly by the state to provide their ships and crew, but, when engaged in private shipping operations, did *kubernetai* have the right to take on cargoes (perhaps return cargoes where none had been prearranged) on behalf of *naukleroi* or an owner? At least in terms of seeking payment for transport operations, *naukleroi* seem to have acted on behalf of the shipowners, as is clear in a document from Oxyrhynchus dating to the third century, where three *naukleroi*, one described as *naukleros* of a 'private' ship (which surely means his own), and two as *naukleroi* of ships owned by... Ophellius and Claudia Berenice, request payment for the transport of 4,567 1/3 *artabas*.¹³¹ It seems clear, then, that *naukleroi* could act as business-managers for the shipowners.¹³² Even in state operations, it now seems as though *kubernetai* could act as agents. In a text from Oxyrhynchus, it is clear that the *kubernetes* is acting as such: Aurelius Dionysius, the *kubernetes* of a ship belonging to Dionysyammon (the Alexandrian linen-transporter),

¹²⁷ Gonis (2003: 165), citing Banaji (2001: 128–9). ¹²⁸ See now Ruffini (2008).

¹²⁹ See the brief discussion in Meyer-Termeeer (1978: 7–9).

¹³⁰ Such instances are rare: *P. Hib.* I. 39; *P. Rain. Cent.* 44. In the fourth century, it is better attested, see Meyer-Termeeer (1978: 8, n. 89) for references to *ναυκληροκυβερνήται*.

¹³¹ PSI 1048. On 'private' ships, see Meyer-Termeeer (1978: 8), with Hauben (1971: 247; 1997).

¹³² The nature of this relationship deserves fuller study in a separate form.

'hired out for transport purposes the ship under his charge to councillors of Oxyrhynchus responsible for the transport of wine for soldiers of the *legio II Traiana Fortis Valerianorum et Galliena* based in Hermopolis'.¹³³

COST

Ναῦλον is the term used in the papyri to mean charge for freight. In a small number of cases only is it possible to establish clearly what the rate was, for either details of the point of origin or destination, or other details about the size of cargo, are lost.¹³⁴ Thus it is very difficult to establish what the rate of transport was at any time, and, owing to the very sporadic chronological distribution of the evidence, it is nearly impossible to chart any patterns, apart from the fact that rates, at least on the surface, inflate greatly in the late third and fourth centuries, although it is unclear how they increased in real terms and in proportion to the value of cargoes. It is most likely that the relative cost remained fairly constant.¹³⁵ In general, rates were low, and it has already been established that rates of around 3.5 per cent or 4 per cent were normal. It seems that the rate did vary according to distance travelled, as we would expect.¹³⁶ One interesting detail, which may be instructive of a theoretical norm, is a mathematical exercise preserved from Oxyrhynchus, where the student is asked to work out freight rates, which are 3½ per cent for 10½ miles.¹³⁷ *Ναῦλον* was charged whether or not the freight was public tax, military supplies, or private goods. In most freight contracts, we see that part of the sum agreed was paid upon departure, the remainder after the safe delivery of the cargo at its destination.¹³⁸ As we have seen, private freight contracts often included additional charges and maintenance for crews. The bottom line is that our evidence suggests that transport rates, even over considerable distances, were low, and, depending on market prices, profits could be made. The question is why are rates low? Is it because the state's demand for transport encouraged in turn an environment where transport generally became easier and therefore cheaper; did the Roman presence in Egypt, building on the Ptolemies before them (although we should be careful not to see a seamless transition), determine the scale and structure of transport and trade?¹³⁹

¹³³ *P. Oxy.* XLIII. 3111 (AD 257).

¹³⁴ See Börner (1939: 36–7); Meyer-Termeer (1978: 12–13). See also Johnson (1936: 407–8) for a list of costs; Pearl (1952), who presents a table of texts, to which should be added: *P. Lond.* VII. 1940 (Zenon archive); *SB XVI.* 12,801 (Zenon archive); *P. Oxy.* XLV. 3250 (c. AD 63); *P. Oxy.* LXVI. 4526 (AD 69/70); and *P. Oxy.* XLIII. 3111 (AD 257).

¹³⁵ Rathbone (1996).

¹³⁶ Drexhage (1991: 327–37).

¹³⁷ *P. Mich.* III. 145.

¹³⁸ Vélissaropoulos (1980: 73–4 and 282).

¹³⁹ See Scheidel (2011).

INTEGRATING TRANSPORT

State transport operations, involving the transport both of tax grain and of military supplies, were very complex, and we have a good deal of evidence for them. But often our evidence falls short of providing all the answers we would like. It is clear that, over the course of three centuries, significant changes took place in the organization of state transport, as it moved from systems that were no doubt based on Ptolemaic precedent, to encompass fully the liturgical systems of Roman Egypt, and by the fourth century had come into line with how state transport was organized more broadly in the Empire. Central organization, from the *cheirismos* at Neapolis, through the *strategoï* at nome level, to local officials and later town councils, ensured a close link between the transport of tax grain overland to ports, its loading onto ships, and its transport by river to Neapolis. We know almost nothing of the process of loading onto seagoing vessels for transport to Rome, but the organization of the corn supply from the Roman side is well established. We know little also of how periods of change in the systems of river transport might have been reflected in improvements to systems of land transport, especially in terms of roads. No milestones have been recovered from Roman Egypt, so there is little to go on in terms of road construction. We know from the Antonine Itineraries and the Peutinger Map that roads existed in the valley, but there is no material evidence (because of the annual inundation), and nothing can be linked to administrative change (perhaps apart from the *Via Hadriana* in the Eastern Desert—but this cannot be connected with river transport). It was the interchange between local roads and tracks and ports on the Bahr Yusef or Nile that formed the real link between land and river transport, but this is almost impossible to trace.

One important issue needing some exploration is the relationship between public and private transport. It is clear that the ships undertaking the transport of tax grain were privately owned, either by wealthy individuals employing *naukleroi* as agents, or by the *naukleroi* or *kubernetai* themselves. These ships, when not employed by the state, were employed in private transport operations, perhaps hired by merchants, or perhaps transporting the produce of their owners' land, either for the supply of food to cities, or for their own consumption (if the owners were resident in cities, which is likely), or destined for markets. But where the public and private spheres meet, the differences are often blurred, and tensions are revealed. A good example, but by no means the only one, is to be found in a letter from the papers of Athenodoros the *dioiketes* where the transport of wheat from his estates to the market at Koma in the Herakleopolite Nome is threatened, for 'the ships have been pressed into service by the legion'.¹⁴⁰ It seems, therefore, that, while the

¹⁴⁰ BGU XVI. 2644 (AD 4). On the requisition of animals, see Adams (2007: 135–55).

inconvenience of the requirement to transport tax grain after the harvest could be factored into the economic plans of shipowners or their agents, additional state requisition of ships could be an unexpected inconvenience. Athenodoros had the resources and local influence to be able to accommodate these pressures, but others might not.

One matter for which we would like more evidence is whether ships carried 'hybrid' cargoes, in the sense that they carried cargoes of grain for the state, but were able to double up with a private cargo for sale in Alexandria or Pelusium. The problem is that such details would not be preserved in contacts to carry state tax grain, as clearly they would record no information about private transactions; our evidence is therefore slight. However, it is more than likely that transporters were able to 'piggy-back' private loads onto state transport operations.¹⁴¹ At any rate, they were guaranteed return/upstream cargoes from Alexandria. These may have been organized prior to the expected transport of tax grain, or, if *naukleroi* as agents were free to engage cargoes themselves (which is likely), they could have been chartered upon arrival at Alexandria. Such a situation is clear in the one papyrus we do have, already discussed, which details a return cargo. As Scheidel points out, traders benefited from the natural reduction in predation, transaction, and financial costs, as well as the stability of the economic environment that followed Roman rule. Scheidel goes on to state:

trading costs consist of three main elements: transportation costs, which are the sum of the cost of carriage, the cost of risk from natural causes, and what has been termed the cost of predation; transaction costs, defined as costs involved in transferring goods from owners to consumers; and financing costs, representing the cost of moving goods from one time to another and caused by the fact that transfers take time.¹⁴²

In Roman Egypt, we have seen that the cost of transport by river was low (around 3.5 per cent), and I have argued elsewhere that land transport was not as costly as has previously been assumed.¹⁴³ Shipping contracts make clear that risks from natural causes were reduced by various means—for example, by dropping anchor at night—and the presence of river guards (*ποταμοφύλακες*) and 'supercargoes' served to reduce other risks. In terms of state predation, in the form of transit tolls and customs duties, although the cost of this had to be factored into any transaction, the rates were low, and, importantly, the state ensured that it was regulated, and therefore was a constant and predictable cost for traders.

¹⁴¹ See Middleton (1983) for similar ideas on military supply in Gaul, and cf. Fulford, Chapter 10, this volume.

¹⁴² Scheidel (2011: 24).

¹⁴³ Adams (2007 *passim*).

Customs duties are well attested in Roman Egypt, especially internal customs dues, which are relevant here (rather than those charged at Egypt's frontiers).¹⁴⁴ Egypt can conveniently be split up into a number of customs districts: the Delta, the Arsinoite Nome and Middle Egypt, and the Thebaid. At various points within these internal districts, customs stations were located in order to collect revenue. As we would expect, the Arsinoite Nome is the best attested, and here we find three separate customs dues were collected, a 3 per cent tax on the value of goods (particular to this nome), a 'Desert-Guard Tax' levied at a rate of less than 3 per cent (in the Arsinoite and beyond), and the 'Harbour of Memphis Tax', again levied at less than 3 per cent, on goods crossing the Heptanomia past Memphis, from Upper to Lower Egypt. Taxes were levied on private goods only; state goods, tax grain, and military supplies were exempt.¹⁴⁵ There is nothing in our evidence to suggest that 'hybrid' cargoes were carried, even though it is likely that they were—many of the ships in our evidence are not fully burdened. Would their captains not ensure they were? In purely private transport activities, duties would have to be paid, and thus a feature of some private shipping accounts is that taxes are built into the overall cost.¹⁴⁶ Receipts for the payment of taxes must have been kept by transporters, in order to confirm taxes had been paid.

In terms of financing costs, then, in Roman Egypt these would bear profitable scrutiny, but it is safe to assume at this stage that, in the favourable conditions provided by Roman rule, these would have been relatively low.¹⁴⁷ We have, then, an environment conducive to trade and transport, and the papyri show this to have been on a large scale.

As far as the state was concerned, there were reciprocal benefits. As ever in Roman Egypt, and throughout the Empire, the state was able to devolve the mechanics of the transport of tax in kind onto the inhabitants of the province. This meant that they did not have to maintain a fleet of state-owned transport ships; neither were they troubled with the inconvenience of arranging return trips in order to keep ships and crews busy. As the second and third centuries progressed, not only were the mechanics of transport devolved, but, through the gradual extension of the liturgical system, so too was the local administration of transport.

These final points show that, in order fully to understand patterns of transport and trade in Roman Egypt, the interaction of public and private, state and individual, is a central factor. This is true of the economy as a whole.

¹⁴⁴ Sijpesteijn (1987); Cottier (2005; 2010).

¹⁴⁵ *D.* 39. 4. 9. 7–8 [Paulus]; 49. 14. 6. 1 [Ulpianus], cited in n. 95. Both mention an edict of Hadrian ensuring that those engaged in state business did not pay duties. See also Bowman, Chapter 2, this volume.

¹⁴⁶ E.g. *P. Oxy.* XIV. 1650; 1650a; 1651.

¹⁴⁷ Stressed by Scheidel (2011).

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My thanks go to Alan Bowman and Andrew Wilson for the invitation to contribute to the conference and publication. This paper moves on from issues covered in Adams (2007), not least in considering river transport, and takes up themes raised in Bowman (2009). The chapter was written before the appearance of Cooper (2014). Matthew Gibbs, Alan Bowman, and Andrew Wilson offered advice on an earlier version; Alan Bowman provided additional help at the final stages. None is responsible for any errors of fact or interpretation that may remain.

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Part II

Trade within the Empire

The Indispensable Commodity

Notes on the Economy of Wood in the Roman Mediterranean

W. V. Harris

INTRODUCTION

Within a very few years of each other, two potent but mismatched rulers, Simon bar Kochba and the emperor Hadrian, took thought for the timber supply of their respective domains. The latter was concerned about the trees in the northern half of Mount Lebanon, and caused to be erected there at least 800 stone inscriptions (they were sometimes numbered),¹ by means of which he reserved four types of trees as imperial property. These were probably, so it is thought, cedar, fir, and pine, and either cypress or juniper.² This *definitio silvarum* may well mean that the woodlands in question, which Hadrian must have seen as a still very valuable resource, were under severe threat, and one recalls that he travelled in this region in AD 129–30. The exact nature of his concern is unknowable, but military preparedness, Mediterranean shipping (particularly the shipping of grain), and imperial building plans may all have come into it. A little later, an Aramaic letter on papyrus reveals that Bar Kochba too was concerned with the conservation of trees,³ and it would obviously be a fair guess that the motive for his concern was all military. That there was a need for conservation in this region is wholly unsurprising: not only had Judaea been the scene of prolonged warfare two generations earlier, it was within easy range of a city—Alexandria—that consumed far

¹ See *IGLS VIII*, 3, ed. J.-F. Breton; at least 187 of these inscriptions have been recorded. There are now dozens more: see *AE* 2006 [2009], 1572–5.

² Mikesell (1969: 20).

³ *P. Yadin* 50 = Healey (2009: no. 19); ‘and regarding the cattle, let them not destroy the trees. And whoever raises an objection, recompense taken from you will be great’.

more wood, generation after generation, than its immediate hinterland could possibly produce (and the rulers of Egypt had been importing timber by sea since at least the third millennium BC).

It is implicit in the stands taken by both these rulers that, whatever their precise concerns, long timber was a material of paramount importance to an alert ancient government. We no longer perhaps regard Roman imperial governments as being as slow to intervene in economic affairs as we once did,⁴ but Hadrian's large-scale intervention in particular suggests vigorous interest, best paralleled by imperial appropriation of mineral resources and more remotely by Trajan's renewed attempt to build a 'Suez Canal'.⁵ Later I will suggest that imperial estates and the emperor's agents had always been involved in the supply of fuel-wood and timber on a substantial scale, though probably without dominating the market, as they apparently did with a number of minerals. Hadrian's protective attitude towards the four species in Lebanon also matched an increased concern for the supply of other commodities, notably olive oil,⁶ but at the same time descended from a very long line of official interventions in the procurement of tree products in their various forms.

'Procurement' is the operative word: governments needed supplies. But, as far as wood products of all kinds were concerned, it was private merchants who satisfied a very large proportion of demand (see below); even when public or imperial woodlands were in question, all the evidence is that contractors, in competition with each other, brought the goods to market. The conditions in which they worked were quite often affected by governmental concern for infrastructure, but it was normally an elaborate trading network that kept the Roman world adequately supplied with the commodities in question. (In the circumstances of war there will always have been much requisitioning.)

The hypothesis put forward in this chapter is, then, that the enormous demand for wood under the Roman Empire led to no general crisis of supply for two reasons: the spread of competent woodland management on a very large scale, and the development of a complex and effective trading-and-distribution network, which, though not in any strict sense integrated empire-wide, was at least integrated within large regions. This system of production and distribution helped to stimulate the now well-attested 'Smithian' growth or intensification of the Roman economy in the approximate period 200 BC to AD 240 (an intensification that was not necessarily accompanied by any dramatic increase in per capita GDP),⁷ and was in turn stimulated by it. All this can be fitted into what is

⁴ Cf. Harris (2003), slightly revised as Harris (2011a: ch. 9).

⁵ On the latter, see Aubert (2004).

⁶ The *portus olearius* at Rome goes back to Flavian times at least: *AE* 1980: 84. State involvement grew in the mid-second century: Harris (2011a: 213–16).

⁷ For economic growth in this period, see, among others, Kehoe (2007: 243–50); Scheidel (2009); Malanima (2009a); Wilson (2009). In the late Republic: Harris (2007: 538–9 = 2011a:

known from material and textual sources about the quite limited degree of deforestation that seems to have occurred in the Roman Mediterranean (though much depends here on how one defines deforestation).⁸

None of this should be taken as an argument in favour of a modernistic view of the Roman economy. Having been (erroneously) categorized as an exponent of such a point of view,⁹ I realize that I cannot have been clear: I thought that I had always insisted on the pre-modern nature of the Roman economy, while also supposing that categories such as supply, demand, capital, and labour are nonetheless indispensable in any intelligent analysis of that economy.

The model of the trade in wood that I am proposing makes sense out of all the evidence I am aware of. It also goes somewhat beyond that evidence, and beyond what might be inferred from the development of other pre-modern economies, on the basis of what I think we know about Roman practices and the Roman environment more generally.

But first a philological point that reflects a major ecological and economic difference. Latin distinguished between *materia/materies*, timber (tendentially long timber) that you use for building and making things, and *lignum*, wood as fuel (which was often of course converted into charcoal). Ulpian is quite explicit about this,¹⁰ and what a *negotians materiarius* did is clear enough from, for example, a tombstone from the Val d'Arno above Florence (suitably enough) showing the tools of a joiner's or carpenter's supplier.¹¹ In the ordinary language, however, *lignum* was sometimes used, as Ulpian states, for wood more generally, including construction timber.¹² And the more polycentric world of the Greeks did not manage to make any consistent distinction between *xulon* and *hule*.¹³

But there is an important rider here: man's economic need for woodlands did not by any means exhaust itself with fuel and construction timber. Other products came into it as well, notably pitch (which had many functions),¹⁴ and

285–6); Hin (2013: esp. 43–62), with Harris (2017); Kay (2014: esp. ch. 11). For 'Smithian' growth, see Goldstone (2002: 324).

⁸ For a provisional view of deforestation in classical antiquity, see Harris (2011b); see also pp. 223–4.

⁹ Andreau (2010: 22; in some of my writings, he says).

¹⁰ Dig. 32.55 pr.: *ligni appellatio nomen generale est, sed sic separatur, ut sit aliquid materia, aliquid lignum. materia est, quae ad aedificandum fulciendum necessaria est, lignum, quidquid comburendi causa paratum est.*

¹¹ CIL XI.1620 = ILS 7540; but Anon. (1975) provides a better text, with a photograph of the inscription, which was rediscovered at the *castello* of Sanmezzano (Sammezzano) (photo also in Diosono 2008: 57, who mangles the deceased's name).

¹² It means wood in a wider sense in, e.g. Caesar, *BC* 2.2.3, 2.4; *Bell. Afr.* 10.1; Festus, pp. 141; 363L; Celsus, *De med.* 8.4.2, 15.5; Curtius Rufus 3.2.7; Frontinus, *Aq.* 125, quite apart from poetic texts.

¹³ Cf. Meiggs (1982: 361).

¹⁴ On this topic, see Giardina (1981: 99), with bibliography in n. 91, to which add Schramm (1937); Meiggs (1982: 467–71).

rustic foodstuffs such as acorns.¹⁵ Many rural populations depended in part on hunting, and gentlemanly hunting implied the conservation of large swathes of timbered land.¹⁶ What humans wanted from their woodlands was in short quite complex.

And now another philological point of considerable importance. Meiggs asserts that *silva caedua* was a technical term for coppiced trees, and, since the expression already appears in Cato and in Varro, that would imply that the technique of coppicing was well known in late-republican Italy—which is quite credible, since it was known to Theophrastus.¹⁷ The standard lexica, however, know nothing of this technical term, ignoring what is in fact an interesting ambiguity referred to by Gaius in the *Digest*.¹⁸ According to the latter, ‘some people’ think that *silva caedua* simply means woodland that is meant for felling, but ‘Servius’ (the late-republican jurist) thought that it meant woodland that was cut back and grew again *ex stirpibus aut radicibus*, which sounds like a garbled account of coppicing or pollarding. And actual usage is inconsistent: sometimes, as in Columella—a real expert—the meaning is plainly wood for felling in general, whereas Pliny’s *Natural History* uses *caeduuus* to refer to coppiced trees.¹⁹ The upshot of all this is that, on the one hand, we cannot say that *silva caedua* in Cato and Varro refers to coppiced woodland (in Cato it plainly does not), but, on the other hand, some land-owners did know of the technique by Servius’ time, and by Pliny’s time it was probably in common use.

DEMAND

So what about demand? What establishes the extraordinary level of Roman demand more clearly than anything else is the evidence of copper and lead pollution in the Greenland ice, published by Hong et al. in 1994 and

¹⁵ See Giardina (1981: 98). One notes how some provincial governments apparently distinguished for taxation purposes between *silva vulgaris* and *silva glandifera* (Hyginus, *De limitibus*, p. 168 Thulin, specifying Pannonia; where possible I spare the reader cross-references to the Lachmann, Campbell, and Guillaumin editions of the *agrimensores*). Acorns important enough to give rise to jurists’ rulings: *Dig.* 18.1.80.

¹⁶ Lane Fox (1996); on the latter point, see Pliny, *Ep.* 5.16.7.

¹⁷ Meiggs (1982: 263); Cato, *De agr.* 1.7 (quoted by Varro, *RR* 1.7.9), Varro 1.23.5, 37.1; Theophrastus, *HP* 2.1.1 (see n. 91). The apparent reference to coppicing in Seneca, *Natural Questions* 3.11.4 (*succisae*), probably derives from Theophrastus too.

¹⁸ *TLL* and *OLD* s.v. *caeduuus*; Lewis and Short are a little better, but misrepresent the key *Digest* passage, which is 50.16.30 pr.

¹⁹ Columella, *RR* 3.3.1; he never otherwise uses the expression, possibly just because of its ambiguity. Pliny, *NH* 17.58–9 (*arbores*), 147 (*regerminatio*).

Rosman et al. in 1997 and frequently commented on since.²⁰ Other vital evidence comes from deposits in lake sediments and peat bogs in various parts of Europe.²¹ From all this we now know that metalworking activities involving silver, lead, and copper reached a very high level in the Mediterranean region two millennia ago, a level probably not reached again until the Industrial Revolution. It is a reasonable inference that the same applies to iron production.

Everywhere you turned in antiquity there was wood. Trees had ‘a thousand uses’.²² Wood was virtually the only fuel: you needed it not only to keep warm and to cook, but to make, among other things, bricks, lime, glass, and in some places salt. Metallurgy was of course a huge consumer. Meanwhile every boat, every house, every vehicle, needed plenty of it. You could not make wine or olive oil without it. Your tools and your spears were largely made of it. Roman bath-buildings were enormous consumers. And after spending a lifetime relying on wood, you ended up, at least in many places in many periods, in a blaze of wood-consuming cremation. Two points to add: all this was true everywhere in the Roman world, not just in rich or highly Romanized places. Second, some of it was optional: some construction methods, and some methods of disposing of the dead too, were more wood-intensive than others, and we shall have to consider later on whether prevailing practices can tell us anything about abundance or shortages.

It seems impossible to build up a viable total for the demand for wood fuel by adding together the probable demand in various sectors such as metalworking and brick-making. Good work has been done on the amount of fuel required in various production and consumption processes (how much per kilo of iron and copper, how much to heat a bath-building of a certain size, and so on), but we cannot estimate with any degree of accuracy the Roman world’s *overall* production of metals or building materials and we cannot by this method estimate the *overall* consumption of fuel for cooking or heating.

It was metal production, even more than the manufacturing of bricks, lime, glass, or pottery, that required the truly lavish use of wood fuel, mostly converted into charcoal. Iron and bronze production were probably the largest sources of demand for fuel, and it can be calculated how much fuel was needed per ton of product—not without difficulty, since there are many variables, including the quality of the ore, the quality of the fuel, and the efficiency of the furnaces and forges. It is often said that the annual iron production of the Roman

²⁰ Hong et al. (1994; 1996); Rosman et al. (1997) (see further Kehoe 2007: 548; Mattingly 2011: 168).

²¹ For the essential bibliography, see Sallares (2007: 26). The shipwreck evidence, though puzzling in some respects, is still crucial: Harris (2009: 259–60).

²² Pliny, *NH* 12.5. Dunn (1992: esp. 279–96) offers a useful survey of by-products traded in late antiquity.

Empire was in the range 80,000–85,000 tons,²³ which matches reasonably well current estimates of Europe's total production about AD 1500.²⁴

How much wood was needed to process the equivalent quantity of iron ore?²⁵ The quantity is probably understated sometimes, because it is supposed that smelting, which was admittedly the most fuel-intensive phase, was the whole story; but there was in some cases an initial 'roasting' too (depending on the composition of the ore),²⁶ then smelting, then finally the actual forging, which was mostly carried out in the Greek and Roman world's innumerable towns (and thus the demand for fuel was spread out).²⁷ It is reasonable to estimate that the production of one ton of iron required 65 m³ of fuel;²⁸ say 32.5–37.2 tons of wood, which would have produced 3.25–3.72 tons of charcoal.²⁹ If we assume for the sake of illustration that a square kilometre of coppiced land produced on average of 200 m³ of wood a year,³⁰ we would conclude that the production of 80,000 tons of iron required all the wood that could be taken from 26,000 km² of such land.³¹ These are striking numbers, and they prove at least that every ironworking centre must have been surrounded by a more or less efficient network of fuel-wood production and supply.

There are, however, too many unknowns to allow us to estimate demand for wood fuel, even approximately, by adding up the demand in single sectors. Another approach is needed, and it is worth considering some comparative

²³ The figure 82,500 was suggested by a writer with a wide knowledge of ancient metallurgy (Healy 1978: 196), and is often repeated; it was based on an estimate of per capita consumption (14.5 kg). But it could be seriously incorrect.

²⁴ Cf. Malanima (2009b: 234). Iron production in medieval China seems to have been far below this level until it reached or surpassed it during the Sung dynasty (960–1279); but the figures are much contested (see Golas 1999: 170).

²⁵ For a somewhat fuller account of this matter, see Harris (2011b: 119–20).

²⁶ See Sim and Ridge (2002: 43).

²⁷ See Healy (1978), Craddock (2008: 107–9), and the bibliography provided by the latter.

²⁸ Horden and Purcell (2000: 184). A similar ratio of wood to iron (30: 1) is posited for England in 1550 by Rackham (2006: 125). Helguera Quijada (2003: 382) says that in nineteenth-century Spain it took about 4.5 kg of charcoal to produce 1 kg of iron, and this charcoal required 20–25 kg of wood.

²⁹ The weight of this amount of wood varies considerably, of course. I have borrowed a lowish estimate from Votruba (2007) and a higher estimate (for softwood) from www.engineeringtoolbox.com. My figure may, however, be too low: Woronoff (1996: 860) has information that in France c.1811 one ton of iron required 4.6 tons of charcoal. The amount of wood needed to produce a given amount of charcoal is quite variable: for a proportion of 10:1 see Horden and Purcell (2000: 334); Rehder (2000: 56) suggests an average ancient yield of 10–15%.

³⁰ I thank Paolo Malanima for this estimate of probable yield.

³¹ These hypothetical numbers are, I note, reasonably close to those of J. E. Rehder, who—using his own and prior experiments—concluded that one kg of finished iron product required in ancient conditions 150 kg of biomass. Hence the production of 80,000 tons of iron would have required the wood taken from between 16,264 km² and 18,619 km² of land, depending on the weight of the wood per m³. (And if the population that produced this hypothetical amount of iron amounted to 60 million, it consumed, for this purpose alone, 200 kg of fuel per person per year.)

figures. According to Braudel, France consumed twenty million tons of firewood and charcoal in 1789, which means about 2 kilos of wood per person per day.³² Eighteenth-century Madrid is thought to have consumed about 2.5 kilos per person per day.³³ Paolo Malanima, for his part, considers that in pre-industrial Europe the population of the plains of Italy will have needed only one kilo per person per day ‘for survival’, with a higher figure obtaining further north (up to 7–8 kilos in Sweden and Finland).³⁴ Actual consumption in the Roman Mediterranean was certainly well above the survival figure, if all forms of consumption are taken into consideration. Our numbers are beginning to be extrapolations from extrapolations, but they lead to a probable enough conclusion: the fuel burden carried (literally carried by man and beast) was heavy, requiring the product of perhaps 75,000–100,000 km² of coppiced land a year (in practice some of it will always have come from the felling of dense forest). This required not only a large-scale supply network, but widespread care on the part of landowners.

In fact the crude numbers I have been citing understate the Roman world’s wood-supply problem, because, while most species of wood can at a pinch be used as fuel, the need for *materia* was much more specific. You often needed long timber, and furthermore people who worked in wood were always well aware that particular woods had particular properties—we possess a large amount of information about their preferences.³⁵ It is true that even ship-builders, who had powerful reasons to pay attention to the properties of the species they were using, often in practice accepted local substitutes, but the builder of a seagoing merchantman needed to be fussy.³⁶

Consumption choices will naturally have had their vagaries, which we can sometimes trace. We learned not long ago that silver fir (*abies alba*) was very popular for furniture-making at Herculaneum, and the researcher in question jumped to the conclusion that, in the years leading up to AD 79, it was ‘undoubtedly present in large quantities in the immediate vicinity’.³⁷ Rather, it came onto the market at affordable prices at some earlier date. (And another researcher has shown, via dendrochronology, that the stored timber in a carpenter’s workshop at Herculaneum had in many instances been felled long before AD 79—the median date of nineteen samples was 6 BC³⁸).

³² Braudel (1981 [1979]: 367).

³³ Tello (2009: 622), based on Bravo (1993).

³⁴ Malanima (2009b: 56).

³⁵ Ulrich (2007: 449) provides an extremely useful summary list of the uses different species were put to. For the wide variety of woods used in ship-building see especially Giachi et al. (2003); Guibal and Pomey (2003).

³⁶ Pomey (2011: 47).

³⁷ Mols (2002: 230); thirty-nine out of fifty-one samples taken from Herculaneum furniture were made of this material. For the trade in this wood, see Mols (2002: 226).

³⁸ Kuniholm (2002: 235).

SHORTAGES

1. Fuel wood

Comparative evidence suggests in particular that a fuel crisis in a wood-dependent economy is most likely to arise in the vicinity of a relatively big city, as happened, for example, in London after 1550.³⁹ Hence we shall expect trouble in the vicinity of Rome, Alexandria, and perhaps Carthage. But most Mediterranean micro-regions probably remained self-sufficient in fuel wood at most ancient periods (which is not to exclude the possibility that their economic development was hindered by fuel shortages).

There were three main exceptions to the pattern of using local fuel, possibly reduceable to two: (1) the great metropolitan centres (places with populations >10,000, let us say—all very dependent on water transport; see below), (2) some areas of intense artisanal production, especially metalworking, and (3) Egypt, where, however, the root of the problem may have been Alexandria.

The construction of the *porticus inter lignarios* outside the Porta Trigemina at Rome in 192 BC, the work of the curule aediles,⁴⁰ occurred at a time when the city of Rome was growing very rapidly but was not yet rich in amenities, and its location suggests that the *lignum* in question was coming up the Tiber not down it, as we might have expected; it would be reasonable to conclude that the lower Tiber valley was no longer rich in usable wood, and the era of carefully managed Italian woodlands had perhaps not yet begun, but the wood that came up the Tiber may simply have come from the coast of Lazio, as we know that (some of) it did in the fourth century AD.⁴¹

It is striking, however, that there is no more sign of shortage at Rome (or any other large city except Alexandria) until the fourth century AD. The obvious evidence is in the *Theodosian Code* and refers to the emperors Valens and Valentinian in 364. By this date, apparently, a substantial amount of the wood for heating baths was being imported to Rome from North Africa, and the matter was important enough for the emperors to try to make this system work properly.⁴² It is clear that such imports began earlier⁴³—perhaps under

³⁹ Allen (2003). ⁴⁰ Livy 35.41.10.

⁴¹ Meiggs (1982: 359) asserted that this portico 'can hardly have been a firewood market', but must have been for long timber, seeming to forget for a moment how important firewood was. The fact that (later) there was a *vicus materiarius* nearby (*CIL* VI.975, col. 3.36) tells against, not in favour of, Meiggs's view. For the coastal area see n. 81.

⁴² *C.Th.* 13.5.10. Cf. Meiggs (1982: 258–9, debatable in some respects). The claim in the *Historia Augusta* life of Severus Alexander (24.5) that that ruler concerned himself with this matter is probably, *pace* Meiggs, a fiction like much else in the biography—but it does tell us what a late fourth-century Roman (probably a city-Roman) thought a good emperor ought to do.

⁴³ The edict *renews* the shipmasters' privileges. But *dudum* does not necessarily mean that the grant was of long standing.

the impact of the construction of the enormous baths of Diocletian.⁴⁴ The proconsul who was probably the immediate predecessor of the recipient of the 364 edict, one Octavianus, is by chance known to have exacted very large quantities of *lignum* from his subjects,⁴⁵ and one must suspect that some or all of it was intended for the capital. (Thus, when the city prefect Symmachus, in 384 or 385, making a case for granting a grain subsidy to Terracina as well as to Puteoli, claimed that Terracina 'supplies *ligna* for the public baths and lime [which is fuel-dependent too] for repairing the city-walls',⁴⁶ he may have been exaggerating.⁴⁷) And other evidence shows that by the 380s the government regularly requisitioned both firewood (and also other lumber) and charcoal in wide areas of Italy and some of the western provinces, hampered by exemptions awarded to the powerful.⁴⁸

As for mining and smelting centres, the case of Elba is suggestive: whereas for Diodorus Siculus the processing of the abundant local iron ore, up to and including the smelting, all took place on the island, for Strabo, writing a generation or two later after a visit to the place, the smelting took place on the (nearby) mainland.⁴⁹ Of more general significance is a passage of the elder Pliny in which he attributes the preference of bronze-forgers 'in many parts of Italy and in the provinces' for charcoal as against wood fuel to a shortage of the latter (*propter inopiam ligni*). It is obvious that he was referring to purely local shortages, which the bronze-forgers met by bringing in a substitute that was far lighter to transport (though transporting charcoal is complicated by its friability).⁵⁰ And what is perhaps most striking of all about Roman copper production in the Wadi Faynan in Jordan (Roman Arabia), apart from the pollution that continues down to the present, is that the necessary supply of charcoal (thousands of donkey-loads per annum) was so well organized that

⁴⁴ Panella (1999: 195–6) points out the growing importance of North Africa as a source of the capital's basic commodities, including grain and oil, in the period from Gallienus to Constantine. But this trade in wood-fuel must have had specific causes.

⁴⁵ *CIL* VIII.24609, unfortunately fragmentary. It seems obvious that Pflaum was right to suspect that this man was the same as the Octavianus who was appointed proconsul in 363 (*PLRE* I Octavianus no. 2, *PIR*² O 15).

⁴⁶ *Rel.* 40.3.

⁴⁷ So D. Vera, *ad loc.*

⁴⁸ *C.Th.* 11.16.15 and 18 (in both cases the requisitioning of charcoal for the manufacture of arms is referred to as an 'old custom'), issued to praetorian prefects in 382 and 390. Siculus Flaccus, p. 129, Thulin refers to a quite different practice.

⁴⁹ Diodorus Siculus 5.13; Strabo 5.223. It is possible, of course, that Diodorus was ill-informed; possible too that Elba (now, incidentally, well-wooded) had long been dependent on fuel brought across from the mainland.

⁵⁰ Pliny, *NH* 34.96. It is curious that, according to him, the Capuans were an exception to this pattern, using not charcoal but wood (95). This could be explained in a number of ways, by better tree conservation perhaps or by the higher prices that Capuan bronze may have been able to command. As far as I know, no one has catalogued the known ironworking sites from imperial Italy (for further instances, see Giardino and Quercia 2008; Veal and Thompson 2008: 289). There is also some evidence that pottery kilns drained local fuel supplies in various places: Horden and Purcell (2000: 335).

production continued for centuries after the supplies in the immediate vicinity must have been exhausted (the mines were probably imperial property).⁵¹

Egypt, apart from the capital itself, was the most vulnerable area of all. This vulnerability was visible in Ptolemaic times, to go back no further.⁵² From Ulpian we learn that Egypt was chronically short of wood fuel (the inhabitants used reeds)⁵³—so short of it that at some date in the second or third century it imported some from Italy, presumably at quite a high price and presumably from Calabria or the Adriatic.⁵⁴

It would be possible to take a more radical view than the one outlined here, and to blame a hypothetical fuel shortage in Italy as a whole for a decline in brick production there after Caracalla (however there was a recovery under the tetrarchy), and/or for the large-scale change from cremation to inhumation in the mid-second century.⁵⁵ But other explanations of these changes are more convincing.

2. Long timber

Shortages of long timber also seem to have been limited, surprisingly so unless we hypothesize well-developed trade mechanisms and a degree of competent forest management.

Theophrastus shows that there had been a serious lack of shipbuilding timber in late-fourth-century Greece,⁵⁶ and he wrote early in a period of about a century in which, because of the number and increasing size of warships, the long-timber supplies of the eastern Mediterranean were put under greater strain than ever before or later.⁵⁷

Republican Rome was able to avoid such shortages by means of state power, as we shall see in the next section. Even the tremendous loss of ships in the first war against Carthage (about 600 vessels⁵⁸) seems to have caused no such difficulty, partly no doubt because much of the Latian and Campanian hinterland had hitherto been relatively little exploited for this purpose. Both Rome and Mediterranean woodlands may have been fortunate that the struggle for naval hegemony was largely over as early as the Battle of Myonnesos in 190 BC.

⁵¹ Mattingly (2011: 193–4), summing up extensive reports by himself and others.

⁵² Meiggs (1982: 133–5); Kramer (1995: 218–22); Harris (2011b: 127).

⁵³ See Ulpian in *Dig.* 32.55.5: *in Aegypto, ubi harundine pro ligno utuntur*...

⁵⁴ *P. Tebt.* II.686 (second or third century, prior to 275). Comparative advantage was in operation, aided perhaps by the need for cargoes to fill the grain ships returning from Ostia to Alexandria.

⁵⁵ Meiggs asserts the one possibility while denying the other (1982: 504, n. 119; 257), perhaps rightly.

⁵⁶ *HP* 4.5.5.

⁵⁷ As Meiggs (1982: 139) justly remarks.

⁵⁸ F. W. Walbank on Polyb. 1.63.6.

I see few signs of any shortage of long timber, in any strong sense of 'shortage', anywhere in the Roman Mediterranean except Egypt, but some possibly relevant evidence nonetheless needs examining. Dionysius of Halicarnassus, worshipper of Rome, lauds the woodlands of Italy, claiming in particular that they provide ample timber for shipbuilding, but the passage is demonstrably exaggerated, and we should not too readily believe him.⁵⁹ It may be more relevant that in the very late Republic there were enough suitable trees in the vicinity of such an accessible place as Minturnae to permit the formation of whole companies of people devoted to extracting pitch.⁶⁰

A text of Strabo about Pisa describes a fragment of what was happening in Augustan times: most of the timber in the Monti Pisani, he says, 'is now being used up' (*analisketai*) for construction at Rome and elsewhere; that is what was likely to happen when there was long timber fairly close to a good port. If this felling was being done unselectively without thought for regrowth, we might assume that most contemporaries regarded timber as an endlessly abundant resource.⁶¹ But Strabo also says in any case that most of Rome's building timber comes down the Tiber from 'Tyrrhenia',⁶² besides mentioning the abundance of commercial timber coming from Liguria, especially from the hinterland of Genua.⁶³

When the elder Pliny frequently refers in *Natural History* book 16 to sources of timber such as Raetia, Histria, and Corsica that are just outside the Italian peninsula, he implies importation to Italy, but he also refers to the Tyrrhenian coast of Italy and the Apennines as sources, and what we should imagine is a market complicated by the different species for which each location had a good reputation, and by the changing costs of transport (and perhaps of labour) along the routes in question.⁶⁴ There is no need here for detailed speculation, but it is obvious that demand was heavy in Padane as well as central Italy in the first and second centuries AD, and that Raetia (via the

⁵⁹ Dionysius of Halicarnassus, *Roman Antiquities* 1.37.4. It was hardly true for example, that Italy had 'mines of all kinds' (1.37.5—though Strabo 6.286 also makes this claim); cf. Brunt (1971: 128–9). He is plainly inaccurate when he says (20.15) that the Sila suffices for the needs of Italy.

⁶⁰ *ILLRP* 732, 733, 738, 746. These *picarii* cannot simply have been selling pitch. Minturnae lies next to the mouth of the Liris, and all or much of the pitch may have come from higher up the valley. For willow-beds at Minturnae, public property, see Cicero, *De lege agraria* 2.36; perhaps they were no longer very valuable.

⁶¹ 5.223, very often mistranslated.

⁶² 5.222.

⁶³ 4.202, especially suitable for shipbuilding ('these'—large tree-trunks—'they bring down to the *emporion* of Genua, as well as flocks, hides and honey...'). For Liguria as a source of timber under the late Republic see Diodorus Siculus 5.39.2; he does not explain why some of the inhabitants 'fell timber all day long, with efficient heavy axes', but it was obviously in large part to meet Roman demand.

⁶⁴ Raetia (sects 66 (maple), 190 (larch)), Histria (66 (maple)), Corsica (71 (box), 197 (fir)). The other places he mentions are Macedonia, the Pyrenees, some specific zones of Asia Minor and Gaul, Crete, Africa, Syria, and the land of the Vaccae in Spain.

Rivers Adda and Adige especially) and Istria were well placed to take advantage of Padane demand.⁶⁵

Extremely tall straight trees had now become very expensive, but the evidence for this all concerns quite extraordinary needs: in the context of Caligula's obelisk-carrier, Pliny remarks that masts for such ships are commonly said to cost 80,000 *sestertii* (the hulls costing half that);⁶⁶ which proves little. Similarly with the *Diribitorium*, the building with the largest roof span in the city: when it lost all or most its roof in the fire of AD 80, the roof could not be replaced—it would have needed 100-foot beams, and very many of them, since the building was more than 120 metres long.⁶⁷ Domitian will in any case have wanted many long beams (103 feet!) for the roof of his new palace on the Palatine, and he found them.⁶⁸

Some of the fir and spruce (*picea* sp.) from the Campanian cities came from far away, according to one theory from the Austrian Alps.⁶⁹ The implication would be that nearer sources of supply close to viable means of transport were running short, but the researchers in question did not test samples from the region that would have been a much more likely source, Liguria (see above).

Columella, one might think, would hardly have written that vineyards were vastly more profitable than woodland if the products of the latter had a great scarcity value; but this evidence is of slight value, since Columella himself admits that 'very many people [*plurimi*] would doubt that [vineyards are a good investment], with the effect that they...judge the possession of meadows, pastures or wood for cutting [*silva caedua*] to be preferable'.⁷⁰ A generation later, however, woods yielding *materia* in the upper Tiber valley were for the younger Pliny the source of steady but only moderate income.⁷¹

Somewhat later, at least in the area of the capital and in Campania, real prices may have risen significantly: Roger Ulrich has pointed out a difference in construction practices between the Vesuvian cities in the first century and Ostia in the second. The latter used less timber, quite possibly, as Ulrich suggests, because the supply of long timber was now under some stress.⁷²

⁶⁵ In *NH* 3.53 he alludes to logging in the upper reaches of the Tiber.

⁶⁶ *NH* 16.202. *Rates* seems to have been a technical term for a hull.

⁶⁷ Dio 55.8 is the source for the non-replacement of the beams, *Plin. NH* 16.201 for the size of the beams. For the building itself, see Torelli (1995: 17–18, who suggests that the delay in the original construction was caused by the difficulty of finding appropriate roof timbers). By AD 80 the building had no obvious function, in any case.

⁶⁸ For the dimensions of the space in question, see Ulrich (2007: 149).

⁶⁹ Kuniholm (2002: 236–7, dendrochronological evidence).

⁷⁰ *RR* 3.3; the passage quoted is in sect. 3.

⁷¹ *Ep.* 3.19.5; and land values had declined, he says (s. 7).

⁷² Ulrich (2007: 120–1). It is not a matter of regional variation, he argues, or of technical progress. I suppose that the most plausible other explanation for the change in building practices is that it was thought to diminish fire risk, but lower construction costs other than the price of timber may have played a part (Ulrich). The scarcity hypothesis has become a fact in Mols (2008: 539).

As with fuel, so with long timber, the Egyptian case was undoubtedly exceptional. Cleopatra, like her predecessors, could not have built a fleet without importing long timber on a large scale. One of the things that M. Antonius therefore did to keep the queen happy was to give her the territory around Hamaxia in western Cilicia, 'since it was suited to the building of fleets'.⁷³ Whether this suggests that eastern Cilicia and Mount Lebanon would have been insufficient is unclear; no other evidence points in that direction. But the exceptionalism of Egypt in this area is not to be exaggerated: there was even some production of pitch (one wonders from which species of tree),⁷⁴ no doubt because of the high cost of importing it.

Price series would show us whether there were serious shortages, but we have virtually no Roman prices for known quantities of timber. The Price Edict chapter on timber survives, and those prices can be restated in terms of wheat. These can at least be compared with the timber prices we have from fourth-century BC Greece, similarly restated. For a number of reasons the comparison is of uncertain validity (but in both periods much long timber travelled hundreds of kilometres at least to reach the consumer). At all events, rough calculations along these lines imply that timber prices in the Edict were—according to this criterion—by no means exorbitant.⁷⁵

Thus the general Mediterranean picture is that, with the possible exception of super-large trees (100 feet or more),⁷⁶ and with the exception of Egypt, all regions were able to maintain their supplies of long timber either from nearby resources or from places with which they had good transport connections by water.

It should be said that there was no widespread catastrophic deforestation in the Roman Mediterranean; there is neither textual nor scientific evidence of such a phenomenon.⁷⁷ Of course we are at the mercy of our vague definitions here. A huge amount of land was more or less cleared, and between say 100 BC and AD 100 there must have been a vast amount of woodland lost for

⁷³ Strabo 14.669; cf. 671. He is somewhat vague about the extent of the region in question.

⁷⁴ See *P. Oxy.* XXXI.2580 (line 10 seems to imply production not just commerce). Cf. also evidence cited by Meiggs (1982: 471).

⁷⁵ A 21-Roman-foot length of oak, ash, or beech was supposed to cost no more than 250 *denarii* (DeLaine 1997: 215; her account of this chapter of the Price Edict corrects the one given by Meiggs 1982: 367), the equivalent of 55 lbs of wheat at the Edict's price (100 *denarii* per *castrensis modius* = 22 lbs). In Epidaurus in the late fourth or early third century an equivalent length of timber probably cost about 8 drachmas (cf. Meiggs 1982: 428), which at a standard price of 5 drachmas per *medimnos* of wheat would have purchased about 118 lbs of wheat (there are several uncertainties and variables that do not need to be discussed here).

⁷⁶ In the Price Edict, fir and pine timbers between 37.5 and 75 feet long are priced vastly higher per cubic foot than any of the timbers listed that are 18 or 21 feet long; see DeLaine (1997: 214–15). The analysis of the Edict's prices by Nenninger (2001: 39–40) is vitiated by a failure to realize the importance of length.

⁷⁷ Harris (2011b; 2013).

construction and boat-building: the senior Pliny thinks of hills freshly stripped of trees as a common phenomenon.⁷⁸

There has, on the other hand, been a flood of increasingly convincing palynological and sedimentological studies since the late 1990s. In a number of cases they appear to show that woodlands survived the Roman onslaught rather well. For instance, a study of pollen extracted from the seabed in the Bay of Salerno shows that, in a fairly substantial coastal area nearby, there had been no deforestation prior to the eruption of Vesuvius in AD 79, and in fact it only really starts around AD 1200.⁷⁹ Another study, around Sagalassos in the western Taurus in Turkey, seems to show that Hellenistic, Roman, and Byzantine occupation produced no major vegetational changes.⁸⁰ But there is also a huge difference between these two sites: one is closely linked to the Roman waterborne transport network, the other is a good 100 kilometres away from it. In other words, Sagalassian woodlands may have survived well because of sheer remoteness from markets, while those of Campania can have done so only because of a degree of effective management.

By the second century AD, there were, I think, wide swathes of market-accessible lands in the Mediterranean that had lost most of their useful tall trees over the preceding 700 years (and earlier of course in some places). But woodlands had been cared for well enough—perhaps just well enough—to prevent serious shortages.

STATE INVOLVEMENT

The origins of the Roman state's interest in the supply of timber go back earlier than Roman records: after Ancus Martius had conquered the Latins, says Cicero, he made public property out of all the *silvae maritimae* that he had captured.⁸¹ Wood for fuel and for public buildings will have been the prime

⁷⁸ NH 31.53 ('when hillsides have been stripped of their trees, destructive torrents often flow together, where previously the woodland had collected and absorbed the rainfall'). The related passage in Seneca, *Natural Questions* 3.11.3, raises the suspicion that Pliny took this information from Theophrastus not personal observation; *plerumque* ('often') is in any case repeated from the previous sentence and not much use. The theory of enormously widespread Roman deforestation propounded by Hughes (1994) cannot be sustained, but it continues to be accepted by scholars unaware of subsequent work, e.g. Solidoro Maruotti (2009).

⁷⁹ Ermolli and Di Pasquale (2002).

⁸⁰ Vermoere et al. (2003).

⁸¹ *De Republica* 2.33; cf. Giardina (1981: 101). Many authors credit him with the building of the wooden Pons Sublicius (on which see Ulrich 2007: 78–80). He also founded Ostia, according to Cicero, and in fact the settlement of Ostia and the appropriation of the coastal *silvae* are quite likely to have taken place at the same time (as in Liv. 1.33.9, who refers to the woodland in question as the *silva Maesia* and says it was taken from the Veians), but in the fourth century. For the likelihood that the *silva Maesia* was on the coast, see R. M. Ogilvie on Liv. *loc. cit.*

concerns. Theophrastus tells a somewhat mysterious story about an abortive Roman attempt to send a colony to Corsica because of its timber resources, a sequence of events that would perhaps best fit into the period before 338 BC, when Rome controlled relatively little of the mainland coast.⁸² The appropriation of land resulting from the Italian wars of the 320s to 270s will certainly have included woodlands. This culminated in the requisitioning of half the Sila forest in Calabria c.270 BC, presumably intended to secure naval supplies.⁸³ We know from other sources that there were extensive *silvae publicae* in Roman republican Italy,⁸⁴ of such importance to the state that the *silvae callesque* became at some date a regular quaestorian *provincia*.⁸⁵ The *lex Coloniae Genetivae Iuliae* shows that one of Caesar's colonies in Spain owned *silvae* of noteworthy economic value,⁸⁶ and the same was probably true of many other towns too.

There are further references in high imperial times, and the emperor's vast provincial properties must have included much woodland long before Hadrian's initiative in Syria.⁸⁷

An indeterminate amount of this land will have been leased to private merchants, like the pitch production of the Sila. We know nothing about the terms of such leases. Vast amounts of woodland obviously remained in private hands too, in the days of Columella just as much as in the days of Cato (see the following section).

We have seen how fourth-century emperors involved themselves. The creation of the first guilds of *dendrophori* ('tree-carriers'), perhaps under Claudius, signals a degree of imperial surveillance (for this interpretation see below). By the time of Pliny's governorship of Bithynia, such a high-ranking official could be expected to take some interest in improving the means by which *lignum* and *materia*, among other commodities, might come to market.⁸⁸

⁸² *HP* 5.8.2. If Rome's interest was shipbuilding, this would seem a rather early date.

⁸³ See Harris (1979: 184). We know from Cicero, *Brutus* 85, that the Roman state continued to exploit these woodlands for pitch in the 140s and 130s, through private contractors of course (cf. Giardina 1981: 99).

⁸⁴ In Etruria: Cicero, *Mil.* 26; in Campania (the *silva Scantia*): *De lege agraria* 1.3, 3.15.

⁸⁵ In Harris (1976: 100), I hypothesized that this would have been after the Hannibalic War.

⁸⁶ Crawford et al., *Roman Statutes* no. 25 (= Riccobono, *FIRA* I no.21), ch. 82. They were not to be sold and not to be leased for more than five years.

⁸⁷ Imperial properties: *AE* 1909 no. 61, Agennius Urbicus, *Contr.* p. 46.16–18 Thulin; public property: Frontinus p. 55.4 Lachmann = p. 68 Campbell, Hyginus, *De condicionibus* p. 114 Lachmann = p. 66 Campbell, Hyginus, *Constitutio* p. 159.21 Thulin. See further Nenninger (2001: 55–9).

⁸⁸ Pliny, *Ep.* 10.41. How seriously Pliny worked to realize this project remains unknown. For a more general view of economic interventionism on the part of Roman governments at this time, see Harris (2011a: 212–16). For a governor of Asia under Antoninus Pius, see n. 129.

MANAGEMENT AND TRANSPORT

Here is one archaeologist's judgement: 'in all Mediterranean lands the farmer's mind was, and is, of a destructively utilitarian character. He neither has, nor had, any time perspective whatsoever . . . Thus, everywhere and at all times, the local farmer let his avarice get the better of him and yielded to the temptation of clear-cutting . . .'.⁸⁹ This opinion is based on the merest prejudice, but it should keep us alert to the risks involved in asserting that the large landowners of the Mediterranean world 'managed' their woodlands, and their timber resources more generally, in a careful or far-sighted fashion. And whether smaller landowners coppiced or pollarded trees, for example, is unknown.

Among the Latin-speaking elite there was always, of course, a degree of interest in rational land management (the very survival of the texts of Cato and Varro is significant). And, whereas the Catonian landowner's horizon was limited to a fairly small area of Italy, Varro speaks casually of estates in African Byzacena, Spain, Transalpine Gaul, Sardinia, Illyricum, Macedonia, Epirus, 'Asia', Syria, and Egypt, as well as in diverse parts of Italy. Columella's world is similarly vast.

What we are talking about here is a hard-won body of knowledge and a set of practices going back to the Bronze Age if not further, orally transmitted for the most part, and involving virtually all kinds of farmers from the largest landowners to subsistence peasants. No doubt the inhabitants of the ancient Mediterranean sometimes used the land in wasteful and short-sighted ways. The very ambition of Roman management of water resources must sometimes have produced unexpected effects. And in some areas it was considered throughout antiquity to be a happy event, not surprisingly, when cultivation replaced natural woodlands (think of Hadrian in North Africa). But 'in some areas' is a crucial phrase. While Hadrian was encouraging agriculture in Africa, he was attempting to protect *silvae* in Northern Lebanon (not that it is clear whether he was protecting them against depletion or simply against illicit felling).

A whole catalogue of literary and papyrological texts shows how Greek and Roman landholders looked after their timber resources; from the experts, from Theophrastus onwards down to Columella, one seems to discern increasingly sophisticated practice. Theophrastus is already impressive: consider, for example, his discussion of the merits and demerits of various kinds of wood for charcoal-making,⁹⁰ which also seems to reveal the existence of a sophisticated charcoal market. He apparently knew something about coppicing.⁹¹ But, while he envisages the planting of fruit trees, he clearly sees almost all other trees as simply natural growths, making an exception only for cypresses,⁹² presumably

⁸⁹ Rausing (1987: 123).

⁹⁰ *HP* 5.9.

⁹¹ *HP* 2.1.1. I take this to be the reference of the word *kolobon* in *HP* 5.9.2.

⁹² *HP* 2.7.1.

cultivated for the long timbers they provided for construction and shipbuilding. Some 150 years later, Cato is several degrees more interested in the cultivation of non-fruit trees; he explains how to plant willows, elms, and pines as well as cypresses (to which he too pays special attention).⁹³ There is already a *seminarium*, a nursery, for young olive trees on his ideal estate;⁹⁴ this was a regular Roman institution. He knows nothing of grafting trees, however. Cato also recommends the owner of estates that are *suburbani* to produce firewood for the market (whereas the aim of planting tall trees is not the market but simply self-sufficiency).⁹⁵

By the time we get to Varro, there has been another change. He does not discourse at length about woodland management, and mentions the planting of non-fruit trees only in the context of boundary markers, which might be pines, cypresses, or elms, but he particularly recommends the latter: 'there is no better tree for planting; it is extremely profitable.'⁹⁶ Not, however, as we might have expected, because these are three of the four woods most used in shipbuilding,⁹⁷ but for more idealistic-rustic-autarchic reasons: an elm 'often supports and gathers a certain number of baskets of grapes, yields most agreeable foliage for sheep and cattle, and provides stakes for fencing, and also for hearth and furnace'. This is Varro's usual shyness about marketing and selling things,⁹⁸ but the passage nonetheless demonstrates that Varro and his readers, mostly substantial Roman landowners with estates in diverse parts of the Mediterranean, are completely familiar with the techniques necessary for planting such trees.⁹⁹ Cultivated cypresses reappear fleetingly later on.¹⁰⁰

Columella, like Cato, was of course a great enthusiast for vineyards, but he admits that there are 'very many' landowners who preferred pasture land or *silva caedua*, by which in my view he means timber-producing land in general;¹⁰¹ he shows once again how familiar Roman landowners were with techniques for planting large trees.¹⁰² He also shows that by modern standards Roman landowners coppiced their trees on a very short cycle, a reflection of the powerful demand for wood fuel.¹⁰³

In the same period, the elder Pliny maintains that cypress branches, which go for a *denarius* apiece after twelve years of growth, are the most profitable

⁹³ *De agr.* 11, 31, 160 Goujard. See further Meiggs (1982: 262–4). Other references to woodland management include chs 8, 9, 20, 35, 43, 45, 64.

⁹⁴ *De agr.* 45. ⁹⁵ Chs 7 and 6.

⁹⁶ *RR* 1.15. Williams (2003: 97) was mistaken to claim that there were no 'examples of efforts to plant trees other than olive trees'. Strictly speaking, however, it is true, as Meiggs (1982: 270) wrote that there is 'no evidence of the planting of trees to produce timber for the market'.

⁹⁷ Silver fir would not come into his calculations in any case, since it is assumed that the ideal estate is not at a very great altitude.

⁹⁸ This fits the 'old Roman' stance that Martin (1971: 220) detects in book I of the *Rerum rusticarum*.

⁹⁹ Cf. 1.23.5.

¹⁰⁰ 1.40.1.

¹⁰¹ 3.3.1.

¹⁰² Book 5 and *De arboribus*.

¹⁰³ See Meiggs (1982: 268).

kind of planting: this is because they can be used as vine supports.¹⁰⁴ He takes it for granted that many different varieties of trees other than fruit trees are regularly propagated by landowners:

Trees for coppicing [*<silva> caedua*], in addition to those which we have mentioned [willow, chestnut, *aesculus* oak, and cypress] are the ash, laurel, peach, hazel, and apple, but these shoot more slowly and when fixed in the ground tolerate the soil, not to mention the damp, with difficulty. The elder, on the contrary, which is very strong timber for a vine-stake, is grown from cuttings like the poplar.¹⁰⁵

Other species of non-fruit trees deemed worthy of cultivation include plane, elm, ash, and alder.¹⁰⁶

All this shows that the Roman elite had at its disposal complex techniques for the management of woodland. How extensively such techniques were employed, in Italy, in the more advanced provinces, or in the more barbarous provinces, is still an open question, but I suggest that the absence of shortages remarked on in the previous section more or less obliges us to suppose that there was a great deal of careful management in all the areas that were accessible to major markets. And, although Roman agronomists took this matter for granted, it is worth mentioning that harvesting timber was a labour-intensive process, requiring the marshalling of large numbers of more or less skilled men.¹⁰⁷ The next stage was probably that landowners sold timber to merchants on the estate itself,¹⁰⁸ leaving to the merchant the difficult business of felling and transporting to timber yards.

Braudel says of early modern times that 'it was ruinous to transport [wood for burning] more than thirty kilometres', except by water.¹⁰⁹ Later, in an important paper, van der Woude, Hayami, and de Vries showed how, in complex pre-industrial economies, the limits of urbanization were mainly determined by the economics of wood-fuel transport, water transport being the key (without it you needed monstrous numbers of draught animals and the land to feed them).¹¹⁰ Mainly for this reason, it may be supposed, few Roman towns of any size grew up far from water transport. Best was to have woodlands nearby and also access to navigable water: Pompeii, for instance, probably depended for its beechwood charcoal on managed woodlands in the hills fairly nearby,¹¹¹ accessible in part because of the River Sarno, while also

¹⁰⁴ NH 16.141. They are known as 'a daughter's dowry', he says, twelve being his idea of the age at which a girl would marry.

¹⁰⁵ NH 17.151. ¹⁰⁶ NH 17.65–78.

¹⁰⁷ Cf. van der Woude, Hayami, and de Vries (1990: 8); Appuhn (2009: 34–5).

¹⁰⁸ According to the pattern advocated by Morley (2000: 216–20).

¹⁰⁹ Braudel (1981 [1979]: 365).

¹¹⁰ Van der Woude, Hayami, and de Vries (1990).

¹¹¹ See Veal and Thompson (2008: 292–3); much of the wood probably came from land above 800 m.

being able to bring in wood for construction by sea. The region of Hadrumetum—to judge from a well-known mosaic from Sousse—imported fuel wood by sea at some point in the second or third century, probably from further north.¹¹²

All this fits well into the general importance of water transport, now cogently reasserted in a balanced discussion by André Tchernia, who pays more attention than some other authors to the pattern of the archaeological evidence.¹¹³

TRADE

Accessibility was crucial. The high cost of land transport in pre-industrial economies is a given, and exploiting woodlands normally required the proximity of rivers and/or the sea. The classical agronomists all recommend that a landed estate should be close to water transport,¹¹⁴ and various writers point out how essential such transport was to the exploitation of woodlands, especially for long timber. What permits the phenomenal amount of construction in Augustan Rome, says Strabo, is the access to stone and timber afforded by the tributaries of the Tiber, namely the Anio, Nar, Tinea, and Clanis.¹¹⁵

The model proposed here is by no means a perfectly integrated market empire-wide, hard to imagine anyway in a world of such slowly travelling information. We should rather think of regional integration, with Rome itself and Alexandria forming the centres of particularly large regions. There is as far as I know no Roman-period evidence of trade in long timber between the eastern Mediterranean and the west,¹¹⁶ though some areas such as the Dalmatian coast may have exported in both directions.

At this point, something needs to be said about the much debated *collegia dendrophorum*, ‘Guilds of Tree-Carriers’, who are attested in some eighty-five towns in the Latin-speaking part of the Roman Empire. One might follow Cumont and others in thinking that the *dendrophori*, who made up one of the three main guilds or associations to be encountered in many towns of the western Roman Empire, and are often closely linked with the other two (the *fabri* and the *centonarii*), had a professional or occupational function as well as

¹¹² A ship is being unloaded and the cargo weighed. See Dunbabin (1978: pl. 48, etc.). It also appears on the dust jacket of Harris (2011a), where the cargo is misidentified as iron ore (not my doing). The correct identification of the cargo was made by Meiggs (1982: 529–30), and earlier by Gauckler: Du Coudray la Blanchère and Gauckler (1897: 10; pl. I.6. Bardo Museum, A.6).

¹¹³ Tchernia (2011: 124–31; 2016: 89–96).

¹¹⁴ Cato, *De agr.* 1.3, Varro, *RR* 1.16.6, Columella 1.2.3 (the first two see good roads as an alternative).

¹¹⁵ 5.235. ¹¹⁶ See p. 220 for Italian firewood in second- or third-century Egypt.

a religious one.¹¹⁷ The strongest arguments in favour of this point of view are, I think, (a) that, in view of the demand for wood, we might well expect 'tree-carriers' to be very numerous, like the *fabri* and the *centonarii*, and (b) that they continued to enjoy imperial recognition from Constantine (later they were suppressed by Honorius).¹¹⁸ But it is their role in the cult of the Magna Mater that dominates the epigraphical evidence.¹¹⁹ What in any case would have been their work? Did they transport timber from the woods to the timber yards in towns, or were they themselves also timber merchants (the latter seems a more likely hypothesis)?

There are complex questions about these and other *collegia* that cannot be gone into here. It is enough, for the present anyway, to say that known geographical distribution of the *collegia dendrophorum* tells us nothing definite about trade in wood even if the *dendrophori* were mostly timber merchants.¹²⁰ While some of the sites concerned suggest consumption (Rome, Baiae, and so on), others suggest production—Verulae and Antinum in the Apennines east of the capital, for instance, both of them small towns in upland environments. In fact, the main effect of taking the distribution of these *collegia* as an indicator of the intensity of commerce in wood from the Flavian period to the mid-third century would probably be to enhance the role of production in central and southern Italy.

We have already encountered some of the evidence for the geography of the regional trade in timber: Raetia, Istria, and Corsica to Italy, Liguria to Rome, Noricum or Liguria to Campania. We cannot locate the Mons Ancorarius, which provided Rome with luxurious tables made of citrus wood (*callitris quadrivalvis*) to such an extent that supplies were exhausted (information of the elder Pliny), but we know that it was in Mauretania.¹²¹ More commonplace species travelled in the eastern Mediterranean from Side to Egypt, from the Amanus to Judaea, and (later) from Lycia and Cilicia to Antioch.¹²² When

¹¹⁷ Cumont (1903); Rubio Rivera (1993); Diosono (2009: 274–6), etc.; *contra*, most recently, Liu (2009: 52–4, who provides, 384–90, a very valuable list of the places where *collegia dendrophorum* are attested).

¹¹⁸ *C.Th.* 14.8.1. I am not forgetting the well-known signs of Constantine's tenderness towards traditional religious practices. The relief from Bordeaux sometimes brought in as evidence that the *dendrophori* really hauled long timber (Espérandieu 1908: no. 1096) has only a hypothetical connection with them, *contra* Meiggs (1982: 334, and it so happens that none of the three common *collegium* types is attested there).

¹¹⁹ See, e.g. Meiggs's account (1973: 360–3) of the Ostian evidence.

¹²⁰ Liu (2009: 32) summarizes the most striking features: they 'are missing... in the Spanish provinces, Noricum, and Pannonia Inferior, but seemingly ubiquitous in southern Italy, Moesia, and North Africa', a distribution that she explains by reference to the probable local popularity of the Magna Mater.

¹²¹ *NH* 13.95.

¹²² Side to Egypt: *P.Bingen* 77, l. 22 (second century). Amanus to Judaea: Votruba (2007). For Antioch importing timber from Cilicia and Lycia in Libanius' time, see *Ep.* 568 and 1191 respectively.

the younger Pliny was concerning himself with the export of timber from Bithynia,¹²³ the probable destination was among the cities of the Aegean.

Strabo's interest in shipbuilding makes him an intriguing source here. It is worthy of remark that in Turdetania they build ships 'out of local wood',¹²⁴ something the Mediterranean traveller of Augustan times did not expect. In the more or less distant past, the area of Naupactus and Cyprus had been rich in shipbuilding timber, he says,¹²⁵ but the current sources he mentions, apart from Turdetania, are Liguria, the debated locality 'Daton' in Macedonia, the strikingly remote Caucasus and Colchis, the region of Sinope in Paphlagonia, and Cilicia.¹²⁶ It is a credible list of export areas.

Finally we may ask whether the merchants who dealt in wood were specialists or generalists. There were certainly *lignarii* and *materiarii*,¹²⁷ and it may be that the high level of specialized knowledge needed to distinguish woods from each other and to care for them appropriately¹²⁸ tended to exclude the general merchant; but there is no certainty.

If this is the correct model for Roman production, distribution, and consumption of wood, three consequences follow:

- (1) ensuring adequate supplies acted as a powerful incentive to look after infrastructure; we know occasional details, but it would be reasonable to suppose the effect on road-building and harbour construction was much more extensive than we know.¹²⁹
- (2) At first glance, one might suppose that the production of wood must have encouraged an investment mentality, since returns were slow to materialize. Perhaps we should rather say that only large landowners could benefit consistently, and they mostly had some understanding of investment in any case, always within the other ways of using and enjoying woodlands—for hunting, for example.

¹²³ *Ep.* 10.41: the exported products are *fructus marmora ligna materiae*. The exports from the territory of Prusa alluded to by Dio Chrysostom 40.30 may well have gone in the same direction.

¹²⁴ 3.144.

¹²⁵ 9.426–7, 14.684.

¹²⁶ 4.202 (Liguria), 7a.1.33 and 36 (ed. H. L. Jones) (Daton), 11.497 (Caucasus) and 498 (Colchis), 12.546 (Sinope), 14.669, 671 (Cilicia).

¹²⁷ There are, however, too few of them in the epigraphical record for their geographical distribution to have much significance. The inscriptions have been listed by Gasperini (2005); Diosono (2009: 253).

¹²⁸ In the capital we even know of an *abietarius* (*CIL* VI.9104) and *citrarii* (*CIL* VI.9258). On Roman notions about seasoning wood, see Hanson (1978: 296); Rival (1991: 106–11).

¹²⁹ By chance we happen to know that in about 146/7 the proconsul of Asia took serious measures to counteract the damage done to the harbour of Ephesus by timber-importers (*IGSK* XI.1.23)—not that he made their lives any easier.

- (3) As far as the ongoing Battle of Integration is concerned,¹³⁰ the wood sector seems to have been regionally integrated to a considerable extent, between the first and fourth centuries AD (by regions I mean here areas such as Corsica–Italy–Raetia and Lycia–Cilicia–Syria); but, while there was some trade beyond those limits, it is not clear or indeed likely that there were integrated markets on an empire-wide scale (yet without more prices how can we be sure?).

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¹³⁰ The dispute between those who assert and deny that the Roman Empire was home to integrated empire-wide markets; see now Tchernia (2011: 101–31).

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Stone Use and the Economy

Demand, Distribution, and the State

Ben Russell

INTRODUCTION

In general discussions of the Roman imperial economy the movement of stone typically figures relatively little. Occasionally, stone supply plays a sort of cameo role, more often than not as an illustration of the logistical prowess of the state—the movement of huge columns from the Eastern Desert to Rome, for example—or the scale of demand for luxuries at Rome, or both; the emphasis is on the long-distance movement of stone, and particularly decorative stones, for use in prestigious buildings and high-end carving projects.¹ In practice, a similar range of focus can be identified in the ancient written sources. For Pliny the Elder, the Roman passion for imported marbles, and the consequent quarrying and transport of these stones in vast quantities, were a subversion of nature: ‘we quarry these mountains and haul them away for a mere whim; and yet there was a time when it seemed remarkable even to have succeeded in crossing them.’²

A similar theme shines through Strabo’s description of quarrying at Dokimeion:

on account of the present extravagance of the Romans, great monolithic pillars are taken from [the quarries] ... so that, although the transportation of such heavy burdens to the sea is difficult, still, both pillars and slabs, remarkable for their size and beauty, are conveyed to Rome.³

¹ For examples, see all of the references to the stone trade (with the exception of that by Philippe Leveau) in Scheidel, Morris, and Saller (2007); as well as Mattingly (2007: 224).

² Pliny the Elder, *Natural History* XXXVI.1, trans. D. E. Eichholz.

³ Strabo, *Geography* XII.8.14, trans. H. L. Jones.

And this sense of excess finds a later parallel in Sidonius' description of his Gallic villa, entirely unenriched, as he puts it, by 'the chill starkness of foreign rocks': 'my buildings, call them cottages or huts if you please, have their native coolness.'⁴

Implicit in this passage is a tension between local and imported: local materials are proper and appropriate, imported stones excessive, even immodest. We can even find echoes of this unease with imports in the work of the twentieth-century British art historian Adrian Stokes.⁵

Of course, in many ways, this reflects the reality of stone use in almost all periods prior to the twentieth century. Most stone buildings constructed in the Roman period used only local materials; most of the stone quarried in the Roman period travelled only very limited distances. This is the background against which the long-distance stone trade, and particularly imperially stimulated activity, needs to be understood. On the one hand, the long-distance stone trade was essentially a maritime phenomenon, largely restricted to the Mediterranean coastlands. On the other, the investment ploughed into the quarrying and movement of stone by the state, in terms of finances, labour, and infrastructure, was well beyond the means of anyone else. The symbolic value of this activity relied on this fact: it distorts, therefore, the normal pattern of stone use in the Roman world.

The purpose of this chapter is not somehow to downplay the economic importance of the long-distance stone trade or the scale and scope of imperial involvement in quarrying and the movement of stone.⁶ Rather, its aim is to provide them with some context. The long-distance trade in choice materials lies at one end of a long spectrum of activity. Whether privately or imperially orchestrated, it was not separate from the more routine local and regional movements of stone. Most building projects employed a range of materials. From an economic perspective, where the materials at a given site were brought from and how they were used—in other words, the choices made by the builders or commissioners in the selection of stone—can reveal both levels of investment and patterns of consumption, but also access to transport networks and resources; these in turn are potentially useful areas of exploration in discussions of regionalism and economic integration—of what we mean when we talk of 'local' and 'regional'.

DEMAND

In order to understand the stone trade—that is, why stone moved at all in the Roman period—we need to understand the demand for stone. While the use

⁴ Sidonius, *Letters* II.2.7, trans. W. B. Anderson.

⁵ Stokes (1934: 44–5).

⁶ These are given substantial attention in Russell (2013a); and on imperial quarrying, in particular, see Fant (1988; 1993); Hirt (2010); Pensabene (2013: 197–227).

of stone in large quantities is a ubiquitous feature of the material culture of the Roman world generally, demand for stone evolved differently in different areas, depending above all on local traditions of stoneworking. While large urban centres containing a range of stone-built public buildings existed in the eastern Mediterranean prior to Roman rule, as did the quarries that supplied them, elsewhere the use of carved stone in architecture is more closely connected to the imposition of Roman habits.⁷ Early stone architecture in the north-western provinces especially was first and foremost limited to public building, itself tied to patterns of elite self-display.⁸

Stone, however, is not a neutral material. It is valued and admired according to the use to which it is to be put; as Peter Rockwell remarks, 'a stone-worker's view of his material is concerned with its *use*'.⁹ Later building manuals, of the nineteenth and early twentieth century, contain lists of stones ordered according to their suitability for particular jobs.¹⁰ Roman stoneworkers appreciated the characteristics of different materials, their 'unequal and unlike virtues', as Vitruvius puts it.¹¹ A stone suitable for the construction of a domestic structure or a circuit of walls, therefore, will not necessarily be suitable for the facing of a temple, for fine architectural carving or figurative sculpture. Vernacular architecture of all periods is typically a reflection of the local landscape; it is shaped by the qualities of the locally available materials. However, Roman rule brought with it an established repertoire of Roman-style buildings and decorative forms—a 'metropolitan' style—that was less an expression of the local environment than it was of the city of Rome.¹² The high-quality or uniquely coloured stones necessary for the full expression of this 'Roman-ness' were not always available locally and so stone often had to be moved around to feed this demand. Ancient consumers were well aware of the range and variety of decorative stones. The literary sources, especially the poets, are highly specific in their referencing of stone types, and the epigraphic evidence shows that ordinary customers had a similar knowledge.¹³ Imperially funded building projects, of course, contained the greatest concentration of what we might call 'named' stones and, therefore, set the tone for much non-imperial activity.¹⁴

⁷ On quarrying in the Classical period, see Dworakowska (1975); Cooper (2009).

⁸ Greene (2008: 70); also Russell (2013a: 10–12).

⁹ Rockwell (1993: 17).

¹⁰ Lee (1888: 130–43); on the use of certain stone for certain projects, see also Elsam (1826: 129).

¹¹ Vitruvius, *On Architecture* II.7, trans. F. Granger.

¹² See DeLaine (2006: 238), on 'the desire—indeed we might say the social and political imperative—to reproduce Roman-style buildings away from the peculiar local conditions of the city of Rome'.

¹³ For some examples, see Tibullus, *Elegies* III.3.13; Martial, *Epigrams* I.88; Juvenal, *Satires* XIV.307. For mentions of specific stones in inscriptions, see Asgari (1977: 333); McLean (2002: no. 182).

¹⁴ On the naming of decorative stones, Bugini, Folli and Ferrario (2002).

The stone trade, like so much else, resulted from changing consumption patterns associated with broader socio-political developments. While increased demand for particular decorative stones can be noted all across the Roman Empire between the first and third centuries AD, especially in public building, this developed against a background of massive demand for stone of all types that is characteristic of the Roman period.

INTERPRETING DISTRIBUTION PATTERNS

Two general approaches typify the study of the distribution of stone in the Roman period. The first is essentially quarry-centric. The focus is on where the materials from a particular source are found. The resultant distribution maps are useful for highlighting broad patterns, and particularly for showing where certain materials are not found, but they tell us little about how the materials were used where they are found.¹⁵ These kind of distribution maps are an essential first step in the documentation of huge quantities of materials, but they obviously tell us only about the materials that we choose to concentrate on—more often than not, the decorative stones that attract our attention as much as they did the emperors’.

The second approach is to identify where all of the materials at a given site came from, focusing in particular on how these materials were used. This tells us much more about the processes of selection and display, the way in which different materials were employed alongside each other, which in turn reveals the choices made by individual consumers and the way in which they interacted with their landscape and supply networks when acquiring raw materials. By approaching the problem in this way, we can also observe what particular customers, and communities more generally, regarded as normal, and exactly when they decided really to go the extra mile and import much more expensive materials.

For what was normal, we might turn to Vitruvius, who notes in his advice to architects and building commissioners that the cost of a project can be kept low only if:

in the first place, the architect does not require what can only be supplied and prepared at great cost. For it is not everywhere that there is a supply of quarry sand or hewn stone, or fir or deal or marble. Different things are found in different places; the transport of them may be difficult and costly.¹⁶

¹⁵ For a full examination of the distribution of coloured stones from this perspective, see Lazzarini (2004).

¹⁶ Vitruvius, *On Architecture* I.2.8, trans. F. Granger.

Transport, then, is a crucial factor; in fact, more than for almost any other material, the normal distribution of stone was determined by access to transport routes and the cost of transportation.¹⁷ This means, of course, that stone use and the distribution of stone is especially useful for understanding transport networks, their potential, and their limitations.

Most of the stones that anyone bothered to move any distance in the Roman period weighed a considerable amount, between 2,500 and 2,800 kg/m³ in the case of most hard limestones, marbles, and granites.¹⁸ In order to put this in context, a 1 m³ block of marble (2,700 kg) is roughly equivalent in weight to thirty-one full Dressel 20 oil amphorae (each 85 kg).¹⁹ Data from later, post-Roman, periods show that the overland transport of stone has always been expensive. Figures from medieval England and France suggest that it often cost the same amount to transport a block of stone approximately 19 km overland as it did to buy the block in the quarry.²⁰ Sixteenth-century figures from Carrara show that over rougher, steeper terrain the same was true for 10 km.²¹ River and sea transport were obviously far less expensive—this much is clear from the Diocletianic Price Edict, as well as from sixteenth- and eighteenth-century English and French sources—but this was meaningless for inland producers or consumers who had to rely on overland methods.²² And in blithely stating the superiority of sea and river transport over land, we also need to be aware of the potential variability of these milieux. Water transport is much more seasonal, more vulnerable to weather changes, and more reliant on established infrastructure (harbours, quays) than land transport, not to mention more hazardous: while a broken cart is a nuisance and can cause delays, a wrecked ship is a disaster, resulting in the loss of cargo and often lives. At the same time, this kind of sea versus land, or land versus river, debate misses the reality of much medium- to long-distance travel, which probably always involved multiple modes of transport. In such cases, we have to be aware of the additional cost, which is much harder to quantify precisely, of trans-shipment. For a material as cumbersome as stone, this is always likely to have been significant: the avoidance of ‘double-handling’ material is a standard theme of later building manuals.²³ On certain occasions, it might well have been

¹⁷ Knoop and Jones (1967: 45): ‘Apart from the selection of suitable stone, probably the most important problem in connection with the supply of building materials was that of carriage.’

¹⁸ D’Elia (1976: 37); certain soft limestones (2,200–2,500 kg/m³), travertine (2,400 kg/m³), and volcanic tuff (1,700 kg/m³) are lighter than this, while basalt and diorite (both roughly 2,900 kg/m³) are heavier.

¹⁹ The average weight of a Dressel 20 amphora, as recorded by Peacock and Williams (1986: 52), is 28.42 kg, their average volume 62.83 litres, while olive oil weighs on average 0.9 kg/litre.

²⁰ Salzman (1967: 119); Gimpel (1975: 13).

²¹ Klapisch-Zuber (1969: 209).

²² Duncan-Jones (1982: 366–8, app. 17); Klapisch-Zuber (1969: 209); Alexander (1995: 127).

²³ E.g. Lee (1888: 9–10); Renwick (1909: 72). Ward-Perkins (1980: 37) was very much aware of the importance of trans-shipment charges—‘a disproportionately expensive item’ as he put it.

cheaper, if slower, over a set distance to keep a load of stone on a wagon than to move it between a wagon and ship and then back to another wagon.

Since the movement of stone was so difficult, it made sense to keep it to a minimum. For this reason, most buildings built in the Roman period, as in most other periods of Mediterranean or European history prior to the middle of the twentieth century, were built in 'local' materials. As François Braemer observed, the majority of the stone quarried in the Roman period was distributed only 'locally' or 'regionally'.²⁴ What, though, do we mean by these terms? What do we mean by 'local', 'regional', or 'inter-regional'? There can be no doubt that regionalism is in the eye of the beholder. Defining these terms by distance—'local' as anything within a radius of 20 km, 'regional' 100 km—makes no sense. As Michael Fulford rightly notes, 'local' and 'regional' have different meanings in different contexts.²⁵ Access, not distance, is the key variable. How accessible the source of a material was, not how far away it was, determined how much effort was needed to collect and transport it, and so how normal its use at a particular site was. Accessibility depended on a number of interlocking factors, primarily geographic (what was the landscape like between source and destination?), but also logistical (what infrastructure was in place?), and sometimes administrative (who owned the resource, was it monopolized?). As the discussion of transport costs illustrates, at a well-connected site, on the coast and at the mouth of a river, it might have been just as easy to import a block of stone from 300 km away by sea, or from 80 km upriver, as from 10 km inland—the same amount of effort might have been necessary in each case (Fig. 8.1). Coastal cities, and cities located on rivers,

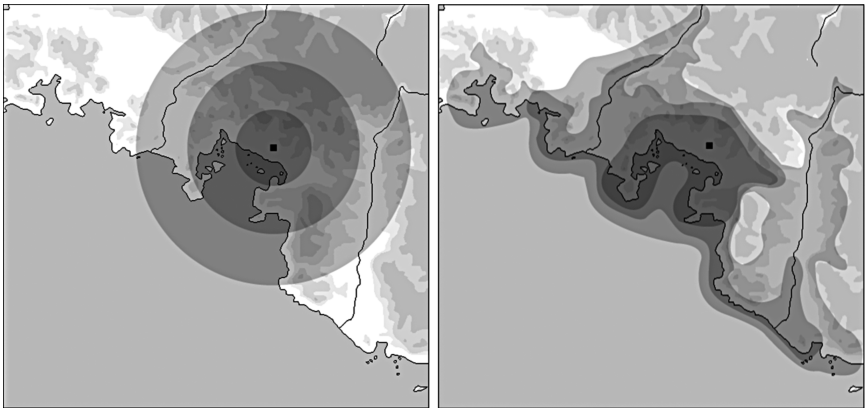


Fig. 8.1. Hypothetical map showing zones around an urban centre, illustrating distance (left) versus effort (right), and showing the effect of different costs of land, river, and maritime transport for importing stone

²⁴ Braemer (2004).

²⁵ Fulford (2009: 252–4); Bowman and Wilson (2009: 26).

simply had greater access to a wider area and its resources than inland cities. Equally, quarries located on the coast or on a river were accessible to a far greater number of potential customers.

However, the ease with which materials could be moved also depended on the form of those materials. Transporting a monolithic column, for instance, is a whole different ball game from transporting a stack of veneer panels, in terms of sheer logistics as much as anything else. Material had to be tailored in both size and shape to the available means of transport. This is clear from two second-century documents from Oxyrhynchus, which mention different sizes of stones: one records an order for 'squared building-stones transportable by camel'; the other distinguishes between two sizes of 'portable stones' (presumably for humans or animals), as well as stone that require wagons to move them.²⁶

The effect of transport networks on the normal distribution of stone in the Roman period can be clearly identified, on the one hand, in the distribution of quarries, and, on the other hand, in the way in which different materials were used at differently situated sites; I will discuss these two features in turn.

QUARRIES AND URBANIZATION

Although the underlying geology determined what materials were available to Roman stoneworkers, it did not decide what materials were actually used. Quarries were opened only where they were accessible, or when demand for their materials was such that they could afford to be more remotely located.²⁷ The map in Fig. 8.2 shows the location of nearly 800 sites, almost all of them published, at which quarrying activity is known in the Roman period.²⁸ Obviously, this is not a complete distribution map of quarries. Many remain unpublished or have been published since this database was last updated; no doubt there are hundreds more in areas where they have not been looked for. A considerable number have probably also been eradicated by later work; in many areas, notably Italy and Britain, we know a lot about the types of stone used, if not actually the sites at which they were quarried. At the same time, the points on this map mark simply the location of sites where quarrying is known—they are not scaled, therefore, to reflect activity at these places, the number of extraction sites, or the volume of stone extracted. These maps, therefore, offer only a very schematic overview of quarrying activity.²⁹

²⁶ *P. Oxy.* III. 498; *P. Oxy.* XXXI. 2581.

²⁷ Braemer (1986: 287–9).

²⁸ For the dataset on which this map is based, see Russell (2013b).

²⁹ For more detail, see Russell (2013a: 37–94).

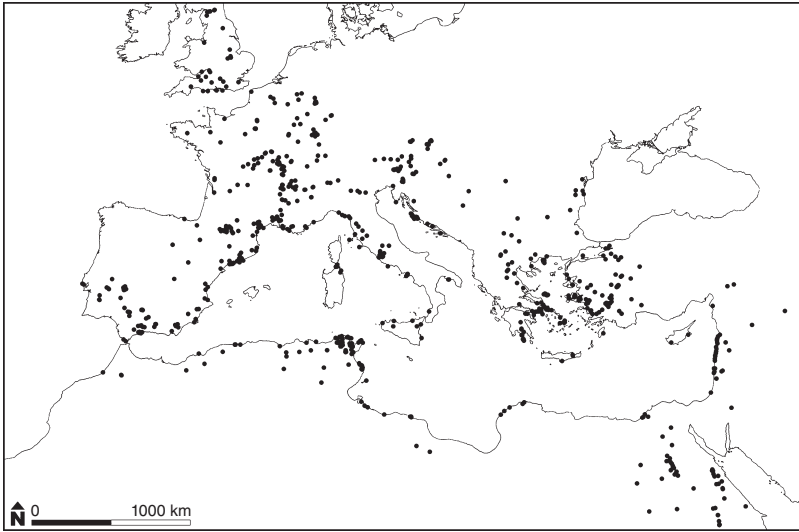


Fig. 8.2. Map of quarry sites in the Roman Empire (Russell 2013b)

These caveats aside, what they show is that the distribution of quarries largely mirrors the pattern of urbanization in the Roman world.³⁰ This is not a hugely startling conclusion considering what has already been said about general demand for stone and the difficulty of transporting this material, but it is a point that needs to be stressed. Most such maps are highly selective, focusing on the major decorative stone quarries, and consequently ignore the position of these sites in the wider landscape of quarrying.³¹ Cities were the main centres of stone use, and, as this map broadly indicates, rarely did builders or stoneworkers need to look more than 20–30 km away, or more than a day's overland travel, for a primary source of suitable, though not always superbly high-quality, material.³²

Much of the most detailed work on quarrying in recent years has taken place in France, particularly following the ground-breaking work by Robert Bedon and François Braemer; arguably we now have a better view of stone use in this region than anywhere else in the Roman world (Fig. 8.3).³³ What is

³⁰ For maps showing the distribution of cities in the northern and western Roman Empire and in the East, see Scheidel (2007: 76–7). A composite map drawing on numerous sources is published in Russell (2013a: 66, fig. 3.8) but a much more up-to-date map has been produced by Jack Hanson as part of his doctoral thesis, 'The Urban System and Economy of the Roman Empire' (University of Oxford), now published as Hanson (2016).

³¹ For prominent examples, see Dodge and Ward-Perkins (1992: 152); Dolci (1989: 18–28); Lazzarini (2002: 264).

³² Bedon (1984: 84–5); Blagg (1990: 48–9). The normality of local supply is true for a range of other basic commodities; see Morley (2007: 579).

³³ Cf. Bedon (1984). For a selection of his many important contributions, see Braemer (1971; 1982; 2004).

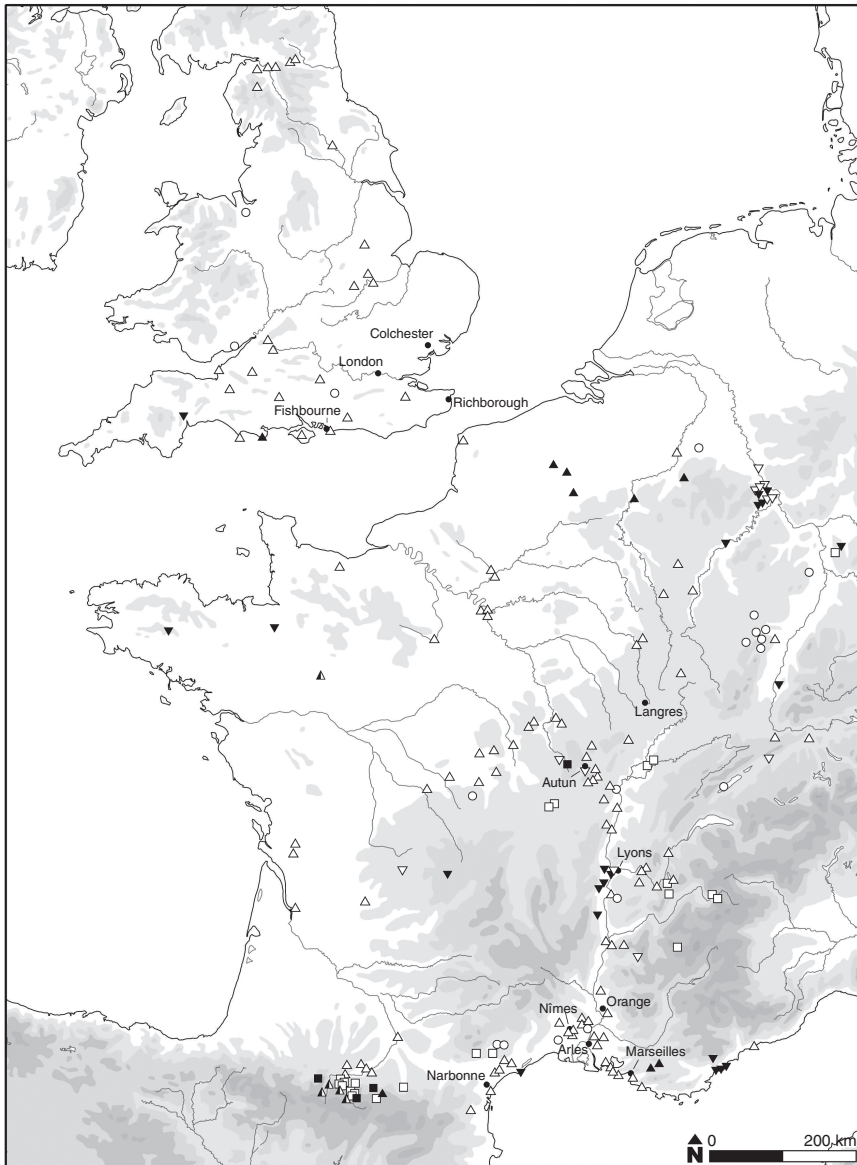


Fig. 8.3. Map of quarries in Roman Gaul and Britain, with key sites mentioned in case studies labelled (Russell 2013b)

Note: □ White marble, ■ Coloured marble, △ Limestone, ▲ Coloured limestone, ○ Sandstone, ▼ Igneous rocks.

clear is that the vast majority of the quarries of Roman Gaul were integral elements of the economies of the urban centres that they were established to supply.³⁴ Almost all these sites, as far as we can tell, were privately or municipally owned.³⁵ However, the scale of demand for materials with particular qualities, colour, or composition can also be seen in the pattern of quarrying in Gaul. Sources of materials suitable for decorative projects, monumental building, and sculpting were especially intensively worked. Deliberate prospection took place, and new sources were targeted. The more valued the material, and the more prized its properties, the more distant from an obvious primary market its quarry could afford to be. In Gaul, we can point to the cluster of quarries in the central Pyrenees, mostly in the upper Garonne valley, at which were extracted a range of white and coloured marbles, granites and limestones, in far greater quantities than the urban centres of this region required.³⁶

Outside Gaul, an intensification of activity in the first century AD, and especially in the second century AD, is particularly obvious at those coastal quarries targeting sources of high-quality white marbles suitable for prestigious architectural or sculptural projects, notably those on the islands of Prokonnesos and Thasos.³⁷ This was a period in which increased demand for white and coloured marbles across the Roman world stimulated unprecedented quarrying activity, even in remote areas.

DISTRIBUTION PATTERNS

These quarries are the nodal points of the ancient stone trade, but in order to understand how they operated in a wider economic milieu we need to turn to the sites at which their stones were used. To explore how the choices made by different consumers were influenced by their location and their access to transport networks, it is helpful to look briefly at a series of case studies, in this case from the north-western provinces (Figs. 8.4 and 8.5).

Narbonne and the Golfe du Lion

If we consider the relative efficiency and cost-effectiveness of maritime transport, it is unsurprising to note that, along the coast of Narbonensis, and

³⁴ Goodman (2007: 111–12). Also on this point, see Leveau (2007: 659–60).

³⁵ The exceptions to this rule, in the north-western provinces at any rate, are those quarries worked by military personnel, mainly located in the Rhineland and along the line of Hadrian's Wall in Britain; see Bedon (1984: 43–50). On military involvement generally, see Strobel (1991).

³⁶ On these Pyrenean stones, see the papers collected in Álvarez Pérez et al. (1995).

³⁷ On Prokonnesos, see Asgari (1979). On Thasos, see Sodini, Lambraki, and Koželj (1980).



Fig. 8.4. Sites in southern Gaul mentioned in case study

similarly along the north-eastern coast of Hispania Tarraconensis, the importation of white marble from Luna is well attested.³⁸ The shipwreck evidence reflects this: a high density of ships carrying cargoes of Luna marble of small to middling weights have been identified off the southern French coast. These finds suggest that the large market for white marble in southern Gaul was generally fed by small ships shuttling material short distances along the Ligurian coast.³⁹ Not all these cargoes, however, were small. One of these shipwrecks, that at Saint-Tropez, was carrying a cargo of monumental column drums weighing at least 230 tonnes, the dimensions of which are consistent with the large temple at Narbonne built to the north of the forum on the hill of Les Moulinassès in Luna marble.⁴⁰ This structure, probably built in the Augustan period and perhaps modified in the middle of the second century,

³⁸ Braemer (1982: 84–5).

³⁹ Bernard (2009: 520) makes this point in her publication of the wreck at Marseillan Beauséjour; see also Russell (2011; 2013c).

⁴⁰ Perret (1956); Janon (1986: 41–6). On the debate surrounding the identification of this temple as the Capitolium, see Gros (1987: 86).



Fig. 8.5. Sites in Britain and northern Gaul mentioned in case study

faced onto the forum of the city, which was in turn surrounded by a colonnaded portico.⁴¹ The columns of this portico were apparently in grey granite, if an early observation by F. P. Thiers is to be believed.⁴² It has been suggested that these were brought down from the Pyrenees via the Carcassonne Gap, but until they are analysed using archaeometric methods their exact point of origin can only be guessed at; in fact, if these columns belong to a second-century phase of the complex, they might even be eastern imports, from the Troad or Mysian quarries. A material certainly brought from the interior for monumental construction in the city, for the carving of capitals and other architectural elements particularly, was the fine white limestone from Bois-des-Lens, just east of Nîmes.⁴³ This stone was probably transported overland from Nîmes along the *Via Domitia* to Beaucaire on the Rhône, from where it could

⁴¹ Whether this structure was affected by the fire in AD 145 is debated, but an Augustan foundation is generally agreed upon: cf. Gros (1996: 160); Perret (1956).

⁴² See Gayraud (1981: 264) on this observation; the three columns now in the cloister of Saint-Just in the city have been linked to this portico.

⁴³ On this stone and its use at nearby Nîmes and further afield, see Bessac (1996).

have been easily moved to the coast and then shipped either eastwards to Nice and Fréjus or westwards to Narbonne. At all these sites, Bois-des-Lens limestone is used for prestigious architectural and sculptural projects, while at Nîmes, closer to its source, it turns up in a far wider range of projects, from small statues and funerary reliefs to architectural elements on structures like the so-called *Maison Carrée*; the further from its source, the more it cost to import, and the more likely it was to be reserved for only the best projects.

Although Narbonne was well connected for the importation of these materials, stones from the immediate vicinity of the city were still used for most projects, especially sculpture, funerary, honorary, and votive.⁴⁴ Fine limestones were quarried at several sites between Narbonne and Béziers, notably at Nissan-lez-Enserune and Lespignan, as well as at Brégines close to Béziers.⁴⁵ Although the high-quality local limestones reduced the need to import materials for sculptural projects, the materials used in the Les Moulinassès temple and its colonnade are revealing of Narbonne's access to both inland and coastal regional transport networks.

Although there is not space here to compare the view from Narbonne with all the other major urban centres of Narbonensis, a similar picture is discernible elsewhere. For most projects, materials from the immediate locality sufficed. Usually these were brought overland, but occasionally, as in the case of Marseilles, sources of suitable materials were accessible by sea.⁴⁶ Imported stones were largely reserved for high-end sculptural projects. At Arles, these included sarcophagi: Gaggadis-Robin identifies two whole and six fragmentary sarcophagi in Prokonnesian marble, two whole and fourteen fragmentary Attic sarcophagi, and five whole and twenty-three fragmentary Metropolitan sarcophagi.⁴⁷ At Orange, fewer sarcophagi have been found, but in his early study of stone use in the city Chatelain identified at least sixty-nine objects in imported white marble, thirty-seven of them sculptures.⁴⁸

⁴⁴ In his study of the sculpture of Narbonne, admittedly now somewhat outdated, Espérandieu identified only nineteen statues in imported marble (1907: nos 558, 559, 564, 573, 578, 582, 609, 637, 658, 716, 771, 772, 812–14, 817, 819; 1908: nos 1704, 1705), out of a total of well over 200 individual pieces.

⁴⁵ Gayraud (1981: 263); Bedon (1984: 33).

⁴⁶ Early construction in the Archaic and Classical periods at Marseilles was completed in limestone and travertine quarried in and around the city, but from at least the third century BC higher-quality limestone was shipped into the city from quarries at La Couronne, and then later Ponteau and Lavéra, all less than 30 km away along the coast to the west; on this point, see Tréziny (2009). On the second-century BC cargo of limestone from these quarries found at Carry-le-Rouet, no doubt in the process of being shipped to Marseilles, see Kainic (1986). Cargoes of limestone from local quarries that were perhaps also destined for Marseilles have been found in the Roman port at Les Laurons, see Ximénès and Moerman 1993.

⁴⁷ Gaggadis-Robin (2000: nos 1–53, 67, 69, 71, 83, 84, 92). Recent archaeometric analysis of several of the sarcophagi from Arles also suggests that at least one was carved in Pyrenean marble: Gaggadis-Robin et al. (2009).

⁴⁸ Chatelain (1908: 201–18).

Archaeometric analysis of some of these white marbles has highlighted Luna, Pentelikon, Paros, and Thasos as probable sources; interestingly in the Augustan period, the Greek marbles seem to have been most common.⁴⁹ When imported stones are used in large quantities for architectural adornment, as they are in the Augustan theatre at Orange, they are employed in combination with, and as facing for, local stones.⁵⁰

Lyons and Central Lugdunensis

Moving up the Rhône into the province of Gallia Lugdunensis, a change in the pattern of imports can be identified. At Lyons (Lugdunum), the use of imported marble for statuary is relatively common, and at least five Metropolitan sarcophagi have also been found.⁵¹ The architectural use of marble is less marked, though it should be noted that archaeometric work on the stones of Lyons is still at an early stage.⁵² Imported marble, and probably large quantities of it, were certainly used at Lyons, but mostly as veneer; coloured panels are referred to by François Braemer at the Odeon, theatre and temple site.⁵³ One structure where we might expect to find the use of decorative imports is the so-called Altar of the Three Gauls, rebuilt in the Hadrianic period, and indeed Duncan Fishwick has connected the columns of Aswan granite now in the church of St Martin at Ainay with this building.⁵⁴ If this is correct, and it remains a hypothesis, then these would be the largest pieces of imported stone north of Orange, befitting one of the most high-profile structures in the city.

Largely thanks to the study by Amable Audin and Yves Burnand, we know far more about the use of stones from closer sources, especially from the immediate territory of the city.⁵⁵ Contemporary with the foundation of the city in 43 BC, schist quarries were opened for the building of the city walls and the first forum, and by the Augustan period granite and gneiss quarries had been established on the banks of the Saône and on the edge of the city, at Fourvière and La Croix-Rousse. As the aspirations of the population developed,

⁴⁹ Antonelli, Lazzarini, and Turi (2002).

⁵⁰ On the coloured marbles recovered from Orange, most of which were employed as veneer or for monolithic column shafts in the theatre, see Antonelli and Lazzarini (2004).

⁵¹ Roughly half of the sixty-four carved stone objects for which Espérandieu identifies the material are marble (1910: nos 1743, 1747–50, 1752–6, 1758, 1759, 1761–5, 1767–73, 1775, 1779, 1784, 1790, 1795, 1798).

⁵² A report on this new work was presented by D. Fellague, F. Masino, H. Savay-Guerraz, and G. Sobrà at ASMOSIA X in Rome in June 2012.

⁵³ Braemer (1982: 87).

⁵⁴ Fishwick (1987: 105) argues that the columns now in the church of St Martin at Ainay originally came from this structure.

⁵⁵ Audin and Burnand (1975).

consumption patterns changed, and stones suitable for fine monumental construction or sculpting were sought out. Consequently, the material of choice in the city in the early Julio-Claudian period became the fine limestone from Francens, near Seyssel, 152 km up the Rhône.⁵⁶ As the fragility of this stone, especially its vulnerability to weathering, became clear, however, more durable alternatives were sought elsewhere, from Fay and Villebois also up the Rhône, and from Tournus on the Saône. When harder-wearing materials were needed—for road surfacing, for example—granites were brought in from Saint-Andeol and Montagny, both just to the south of the city. In other words, materials were brought from some distance to satisfy the growing demand in the city for high-quality limestone, but they were brought by river, and crucially downriver. Although sarcophagi and statues were imported up the Rhône from the Mediterranean, large pieces of stone for building were generally not. Simple logistics help to explain this pattern. Nineteenth-century sources suggest that it could take between twenty-eight and thirty days in summer and up to two months in winter to travel, unmotorized, against the current, up the Rhône from Arles to Lyons; at best, therefore, a rate of 8 km/day.⁵⁷ In comparison, slightly earlier figures show that it took two days to bring a cargo of stone downriver from Villebois to Lyons, a rate of 30 km/day.⁵⁸

Although we can build up an interesting picture of local and regional stone use at Lyons, the evidence for imports remains awkwardly patchy. In this respect, the study of stone use at Autun, about 130 km north of Lyons, offers some more solid conclusions.⁵⁹ Again, Autun relied largely on materials from its territory, an area rich in a range of white and pink limestones, some capable of taking a polish, as well as true marbles.⁶⁰ Some of these stones were transported to the city, both by river and overland, from as far as 100 km away, but other stones from elsewhere in Gaul have also been found, including columns in coloured limestone from the central Pyrenees and colonnettes in the conglomerate from Bourdeau in the western Alps.⁶¹ For high-end carving and architectural projects, imported white marble was brought in from Luna.⁶² Coloured marbles are also found in some quantity in panel form, though several fragmentary column shafts in what looks like Troad granite have also been identified.⁶³ Even this far inland the local elites were in tune

⁵⁶ On the use of Francens limestone generally, see Savay-Guerraz (1997). This stone was also shipped further down the Rhône, at least as far as Vienne.

⁵⁷ Lenthéric (1892: 512–13).

⁵⁸ Dufournet (1976: 254).

⁵⁹ This study, Brunet-Gaston et al. (2009), looks at all types of stone whatever their origin and is a useful demonstration of the kind of work necessary elsewhere.

⁶⁰ Cf. Brunet-Gaston et al. (2009: 410–11); also Bouthier (2004), who also draws attention to a number of the stones used in this region.

⁶¹ Brunet-Gaston et al. (2009: 411).

⁶² Espérandieu noted a series of white marble statues at Autun (1910: nos 1817, 1818, 1821, 1823, 1835, 1845, 1857, 1861, 1864, 1865, 1867–9, 1871, 1873, 1888, 1889, 1981, 1984).

⁶³ Brunet-Gaston et al. (2009: 413–14).

with wider Mediterranean fashions. Autun, after all, is closer to the coast than Langres (in *Germania Superior*), from where comes the famous testament of S. Iulius Aquila, specifying the use of Luna marble for the construction of a tomb.⁶⁴ The largest imported object from Autun is a column drum in Luna marble with a diameter of 1.11 m, suitable for a column with a final height of roughly 11 m.⁶⁵ This is an impressive find, considering Autun's location, but the fact that it is a drum and not a monolithic shaft perhaps hints at steps taken to economize on transport costs.

London and South-East Britain

Large pieces of stone from the Mediterranean rarely made it to Britain. This reflects the pattern also observable in the Rhineland. Stones of Mediterranean origin were typically used only for veneer, and were supplemented with decorative materials available closer to hand.⁶⁶ In the Rhineland this meant the various coloured stones of Belgium, in Britain the dark brown-black 'Purbeck Marble'.⁶⁷ The latter is the dominant decorative stone in the first-century AD levels at Fishbourne and the most common in Roman London in contexts of all date.⁶⁸ In Britain, as in the Rhineland, statues and sarcophagi in Mediterranean materials are found where architectural elements are not. Forty-eight objects carved in imported marble (two in alabaster), mainly small statues and relief sculptures, have been recorded in Britain. The three largest imported objects found to date in Britain, therefore, are all sarcophagi, all found in the south-east of the province, close to London.⁶⁹

London itself, however, was poorly sited with regard to building stones. The main material used in the city was Kentish Ragstone, a sandy grey limestone quarried in various areas of northern Kent, particularly in the area around Maidstone.⁷⁰ Though some distance from the city, these quarries were located on the banks of the River Medway, itself accessible from the mouth of the Thames estuary—a route of 112 km each way. This material is also used at Colchester, Dover, Richborough, and Reculver, all accessible along the coast

⁶⁴ *CIL* XIII. 5708. ⁶⁵ Brunet-Gaston et al. (2009: 412–13).

⁶⁶ For discussion of stone-use in this region generally: Braemer (1982: 87–8).

⁶⁷ On the Belgian coloured stones, see Groessens (1991: 67). On Purbeck, see Beavis (1970).

⁶⁸ Pritchard (1986: 185–6); Isserlin (1998: 143–4).

⁶⁹ For statues in imported marble in Britain, see Toynbee (1962: 128–43, 153 on the Walbrook mithraeum, and 149; 1964: 46, 50, 59–62); Tufi (1983: nos 13, 15, 132); Keppie and Arnold (1984: no. 57); Brewer (1986: nos 31, 115); Cunliffe and Fulford (1988: nos 2, 89, 90, 92, 98, 113, 152); Henig (1993: nos 1–16); Huskinson (1994: nos 26, 96); Crummy (1997: 95). For the sarcophagi, see Toynbee (1964: 21); Rook, Walker, and Denston (1984: 149).

⁷⁰ For discussion of the probable origin of the Kentish Ragstone used in Roman London, see Williams (1971: 172); Pearson (2006: 23–4).

from the Medway.⁷¹ That London was supplied by ship is indicated by the cargo of Kentish Ragstone found on the Blackfriars 1 ship, which was recovered from the bed of the Thames in London.⁷² The use of this stone, therefore, reveals the importance of coastal transport networks in the area around the mouth of the Thames.

For projects requiring a more fine-grained material suitable for detailed carving, the city also made use of limestone from the Lincolnshire series, outcropping around Barnack and Weldon.⁷³ This material seems to have been used for the monumental arch at London, and, if this is the case, then this stone was transported from quarries 130 km distant.⁷⁴ Stone from these quarries was certainly used for sarcophagi at London.⁷⁵

London, like other centres of south-east England, also imported stone short distances by seas from quarries on the French coast. At Fishbourne, therefore, Blagg identified two varieties of French limestone (from around Soissons and Caen), which were used for capitals in the AD 50–75 phase of construction at the site and for columns in the AD 75–100 phase.⁷⁶ At Canterbury, limestone from Marquise was used in the second-century temple.⁷⁷ Recently, at Colchester and London, Hayward has also identified limestone quarried at Norroy, on the Moselle, a site under military control.⁷⁸ At Colchester this stone is used for the gravestone of the centurion M. Favonius Facilis, which could suggest a military supply network for stone that spread along the Moselle and the Rhine, as well as across the Channel.

STATE ACTIVITY

This then is the background against which state activity needs to be set and interpreted. What this series of brief case studies demonstrates is the normality of the local and regional distribution of stone in this period; in aggregate terms this must have constituted a significant activity, but away from the Mediterranean stone rarely moved enormous distances, even for prestigious projects.⁷⁹ When objects carved in stones of Mediterranean origin are found far inland,

⁷¹ Marsden (1994: 80–4, figs. 73–4).

⁷² Marsden (1967: 36).

⁷³ Pearson (2006: 98); for detailed discussion of the various limestones used in Roman Britain, cf. Hayward (2009).

⁷⁴ Pers. comm., Stacey McGowen.

⁷⁵ Dimes (1980: 198–200); Toynbee (1964: 211).

⁷⁶ Cunliffe (1971: 1–4); Blagg (1990: 35). For a complete study of the building stones of south-eastern Britain, which confirms many of Blagg's earlier identifications, see Hayward (2009).

⁷⁷ Blagg (1990: 38); Worssam and Tatton-Brown (1990).

⁷⁸ Hayward (2006; 2009). I am grateful to Kevin Hayward for discussing the results of his research of the materials from London with me.

⁷⁹ For further evidence from elsewhere in the Roman world, see Russell (2013a: 141–200).

they are typically used for veneer—the most efficient way to maximize their surface area—or high-quality carved objects, like statues or sarcophagi, one-off investments that could be purchased singly, in a quite different way from architectural elements.⁸⁰ Of course, what was considered local or regional, easily available or otherwise, has to be viewed in relation to various factors.⁸¹ In the case of stone, as the discussion here indicates, the predominant factor was the cost of transport, itself relative to object type, physical geography, available infrastructure, and means of transportation. A combination of these various factors determined connectivity and the normality or otherwise of exchange. The long-distance movement of stone, consequently, was largely a coastal phenomenon.

Imperial activity does not significantly disrupt this overall picture, but it does distort it. Even most imperially funded projects made use of locally available materials for the bulk of their needs. As Janet DeLaine has shown for the Baths of Caracalla, the vast majority of materials used—tuff, pozzolana, pumice, bricks—came from either the area immediately outside Rome or from regions closely linked to Rome by waterways.⁸² Only the decorative marbles were brought from further afield. The sums that the state was able to invest in securing these materials were simply unmatchable, and the ability of the imperial administration to requisition means of transport gave it access to a far larger pool of manual labour than the average private individual could command.

In their use of materials, therefore, imperial building projects were exceptional. Several examples can be used to illustrate this.

In the context of what has already been said about the normal pattern of stone use in south-eastern Britain, for example, the monumental arch at Richborough, Kent, stands out. This structure is usually thought to have been dedicated in AD 90 to celebrate Domitian's final pacification of the province, though it should be noted that the remains are extremely limited.⁸³ As at other sites, local materials (flint, tuff, and greensand) were used for the core of the structure, with imported limestone from France for structural sections and visible parts.⁸⁴ For the facing of the monument, however, panels of Luna marble were apparently employed, and, if we assume the whole structure was so faced, at least 400 tonnes would have been required. Whether the arch was funded directly by the emperor, by the provincial governor, or by local bigwigs is unclear, but its association with the emperor is clearly distinguished by its materials. Richborough was an important site, described as the

⁸⁰ For more on this point, see Russell (2008; 2013a: 170–82). In his discussion of the distribution of imported stone in Roman Palestine, Moshe Fischer observes similar trends: Fischer (1998: 232–3).

⁸¹ See Reger (2007).

⁸² DeLaine (1997: 100–1).

⁸³ Blagg (1984: 73); Pearson (2006: 23–4).

⁸⁴ Worssam and Tatton-Brown (1990).

'port of Britannia' in the Antonine Itinerary, and this construction was a statement of Roman rule in Britain.

For further examples one might turn to the Danube region, where recent work by Djurić and others has helped to build on the picture provided by much earlier researchers.⁸⁵ Although Mediterranean white marbles are fairly common in the Black Sea cities of Dobroudja (ancient Scythia Minor), rarely were they brought far up the Danube.⁸⁶ A handful of sarcophagi in Prokonnesian marble have been found in Moesia Superior, two, perhaps three, at Ratiaria (Arčer), and one at Viminacium (Kostolac), the provincial capital; at both sites most sarcophagi were carved in local limestone.⁸⁷ The statues in imported marble that are found in this province tend to be clustered along the Danube and are mostly of small dimensions.⁸⁸ The only site to contain significant quantities of imported stones used architecturally is Romuliana (Gamzigrad), the fortified palace of the emperor Galerius, and only then in late third- and fourth-century contexts. Even here, however, local sandstone and limestone were the primary building materials, with locally occurring Serbian marbles (from uncertain sources) used for added decorative effect.⁸⁹

A similar pattern is identifiable in neighbouring Pannonia, where, unsurprisingly, the only substantial concentration of imported Mediterranean stones is associated with the third-century imperial capital of Sirmium (Sremska Mitrovica). Here, archaeometric work has identified columns in a range of coloured and white marbles and granites at the site, including eight red and four black porphyry columns; bases and capitals, as well as large quantities of veneer, in imported materials have also been found.⁹⁰ Again, however, as at Romuliana, most work was completed in local limestone, in this case mainly from the Dardagani quarry along the Drina river to the southwest.⁹¹ The bulk of white marble used at Sirmium is especially interesting in this regard. Rather than coming from the well-known Mediterranean quarries, these materials all originated in the Eastern Alps.⁹² Generally these Eastern Alpine marbles were used only at the closest urban centres—Virunum, Teurnia, and Flavia Solva, among others, in Noricum and Poetovio in Pannonia. But the

⁸⁵ Djurić (1997; 2005); Djurić et al. (2006).

⁸⁶ For recent isotopic analysis of marbles from the cities of Histria and Tomis on the Black Sea, see Alexandrescu-Vianu et al. (2000).

⁸⁷ On the examples from Ratiaria, see Filow (1910: 8–16, figs 3, 4); Atanasova (1972: 141–52, figs 7–11). For the piece from Viminacium, see Vulić (1905: 10–12, no. 37).

⁸⁸ Tomović (1993: map 1).

⁸⁹ Vasić (1993: 118–47). Ward-Perkins identified a column in Aswan granite and another in *verde antico*, as well as epistyle pieces in Prokonnesian, at Gamzigrad in addition to a range of imported materials in panel form (BSR Archive, WP-1 Box XVI); he also noted a white marble with green flecks that he considered to be of Serbian origin.

⁹⁰ Djurić et al. (2006: 104, fig. 1).

⁹¹ See Rižnar and Jovanović (2006) on this newly identified quarry.

⁹² Djurić et al. (2006: 112–18).

quality of those quarried at Gummern and in the Pohorje (at Šmartno na Pohorju), and their proximity to the Sava and the Drava rivers, meant that they were used across a much wider area, notably in many of the urban centres of the middle and upper Danube.⁹³ This again stresses the importance of the fluvial transport networks in this region.⁹⁴ For all its peppering of prestigious materials, imperially funded construction at Sirmium was still firmly rooted in local and regional supply networks.

CONCLUSIONS

In most pre-industrial societies, building is the most significant non-agrarian economic activity, and in few other pre-industrial societies does the level of building compare to that observable for the Roman Empire; in Willem Jongman's words, 'the scale of public—and sometimes private—building exceeded almost anything that was to come'.⁹⁵ Bricks and mortar obviously played a crucial role in this process, but Roman building also necessitated the quarrying of vast quantities of stone: decorative stones, fine stones for carving, ordinary building stones, as well as stone for rubble construction. When it came to stone, most ancient cities relied on their immediate territories for the bulk of their needs. Transporting stone has always been an annoyance best avoided. Against this background of normal stone use, structured primarily around limiting the movement of stone, imperially financed building projects were anomalous. However, they were not cases apart: they were still rooted in the local economy; they still made significant use of materials occurring nearby; and they were still affected to some degree by the practicalities and limitations of transport. But these structures were also statements of power. The decorative stones used, if not the basic materials of construction, were a conscious demonstration of the scope and scale of imperial influence and organization. We can do little more than guess at the reaction of the local population to these buildings, but the upper-class writers based at Rome were suitably impressed, and the physical and visual impact of these constructions was not lost on later observers.⁹⁶

⁹³ The most recent discussion of these marbles is Djurić and Müller (2009); see also Gabler (1996: fig. 1) on the distribution of these materials, especially in Pannonia.

⁹⁴ On the evidence for the movement of textiles by river in this region, see Radman-Livaja, Chapter 13, this volume, on the lead tags from Siscia.

⁹⁵ Jongman (2002: 44–5); for further elaboration of this point, see Jongman (2007: 609).

⁹⁶ For all his scorn regarding the excessive amounts spent on imported stones, Pliny could not help but be impressed by the end results: cf. his remarks on the Basilica of Paulus, 'so remarkable for its columns from Phrygia', and the Temple of Peace, 'buildings the most beautiful the world has ever seen' (Pliny the Elder XXXVI.102–3, trans. D. E. Eicholz).

This, of course, was precisely the point: these buildings were meant to attract attention and to shine in their local contexts.

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An Overview of the Circulation of Glass in Antiquity

Danièle Foy

A discussion of commerce in glass in the ancient Mediterranean must engage with very different categories of objects. The variety of glass products that were traded is explained principally by the way in which glass was produced.

THE OPERATIONAL SEQUENCE OF GLASS PRODUCTION

A new picture of the process of glass production in antiquity has emerged from the combination of archaeometric techniques for defining the composition of glass, archaeological discoveries chiefly of glass workshops and shipwrecks, and a re-examination of literary sources. Unlike pottery, which could be made with ingredients of different qualities but which were available almost everywhere, ancient glass required specific raw materials for its manufacture, which implies a system of staged or disintegrated production comparable to the metallurgical industry. At the start of the process, the primary workshops, mainly established in the eastern Mediterranean, produced raw glass from local sands and from natron obtained either locally or imported. The secondary centres, spread throughout the whole Empire, transformed the imported raw glass into manufactured products.

For a long time, the homogeneity of the composition of ancient glass has been remarked upon, and is today explained by the use of raw materials from the same geological deposits. The pioneering work of Robert Brill on the workshop of Jalamé in Israel has demonstrated that the glass produced in this secondary workshop, dated to the second half of the fourth century AD, was made from two ingredients, of which one, the sand, contained two essential

constituents: silica and lime, naturally present in the shelly sand extracted from the estuary of the River Belus, to the south of Acre (Akko).¹ Egyptian natron served as the flux, the third essential constituent.

The characteristics of the sands close to which the primary workshops were established provide the genetic map, as it were, of different types of glass. Analyses of the composition of a glass object reveal the geographical area in which the primary workshops were located. These technical data (the use of only two ingredients) and the geographical origin of one of the most heavily exploited sand sources were already contained in Pliny the Elder's account describing the discovery of glass (*NH* 36.65): the geographical zone mentioned, the use of local sands, and the importation of natron, a carbonate of soda that lowered the fusing point of the sand, are correct and precise pieces of information.

Numerous analyses of glass composition prove in effect that the sands of the Belus river, and more generally those of the Palestinian coast, were extensively used for the manufacture of glass from the Hellenistic period until the end of antiquity. The majority of the glass of the High Empire found in the West seems to have been made with this material. Outside this region, archaeometry shows that other sand deposits were exploited by the glass industry; the locations of some are more or less well established, but others remain unidentified. It remains the case, however, that the areas of production of raw glass in antiquity were limited in number, and that numerous secondary workshops, sometimes very distant from each other, could use glass of the same origin. A single secondary workshop might also be supplied from multiple sources. In consequence, the chemical analyses cannot individuate the production of a secondary workshop, but they identify a geographical zone of production for the raw material. In reality, things are not as simple as that, because the mixture of different raw glass types, and especially the introduction of recycled broken glass, confuses the issue; it seems, moreover, that certain primary workshops could also produce glass of different qualities.²

Away from the Syro-Palestinian coast, the texts, archaeometry, and excavations of primary workshops enable us to locate other production areas, in particular in Egypt, to the south of Alexandria,³ and perhaps in Africa.⁴ But this glass, as we shall see in this chapter, was not always intended for the western market. Finally, there are compositional groups whose origin or origins remain unknown.

In the primary workshops, the production of raw glass was carried out in large rectangular furnaces. The fusion of sand and natron resulted in a slab of glass, which was hacked into shapeless chunks. Loaded onto ships or caravans

¹ Brill (1988). ² Nenna et al. (2005: fig. 4).

³ Nenna, Picon, and Vichy (2000).

⁴ Foy (2003a).

of animals, these blocks of glass were exported to secondary workshops to be remelted and transformed into manufactured products.

The excavations of an Egyptian workshop of the High Empire, located in the Wadi Natrun,⁵ and of the workshop of Bet Eli'ezer in Israel, dated at the very start of the Islamic period,⁶ have revealed the productive capacity of these establishments: the workshop at Wadi Natrun could produce over 15 tonnes in a single furnace, and the one at Bet Eli'ezer up to 7 tonnes. These workshops were probably seasonally operated, but their production capacity remains phenomenal if one considers that perfume bottles weigh between 10 and 50 g and that the largest glass items rarely exceed 1.5 kg. Produced probably at a high profit, this raw glass was carefully recuperated in the primary workshops for sale. On site, in fact, there remained almost no shards of glass that had been missed.

TRADE IN GLASS

The raw materials: Raw glass and glass for recycling

We are poorly informed about the circulation of sand.⁷ Texts and archaeometry nevertheless allow us to identify the transport of silica-rich sand both for the Palestinian workshops and for the Egyptian workshops. Strabo clearly states that the sand between Tyre and Akko was used for the workshops of Sidon,⁸ and Flavius Josephus mentions the numerous ships that loaded the vitrifiable sand of the Belus estuary.⁹ The identification of different glass compositional groups in the same primary workshops of the Wadi Natrun in Egypt (above) requires us to envisage the transport of sand, over short or long distances.

Only the workshops of the Wadi Natrun were located next to natron sources. The workshops of the Palestinian coast had to import large quantities of natron, of which only the analyses performed on the glass of Jalamé confirm an Egyptian origin. Other provenances are also imaginable, in particular Lydia, renowned for providing the best product, and Macedonia,¹⁰ which produced it in abundance and quality.¹¹ This carbonate, used for numerous purposes, travelled in various forms, mentioned by Pliny the Elder:¹² in lumps, in powdered form, presumably, 'packed in pots' (Egyptian natron), and as

⁵ Nenna (2008a: 61).

⁶ Gorin-Rosen (2000: 52–3).

⁷ We know, however, that sand could be imported from very far away (Ethiopia, India) for use in cutting marble: Pliny, *NH* 36.9.

⁸ *Geography* 16.25.

⁹ *Jewish War* 2.188.

¹⁰ Ignatiadou et al. (2005).

¹¹ *NH* 31.107–8.

¹² *NH* 31.113.

tablets (natron from Lydia). Whatever its origin and appearance, the natron that entered the composition of glass participated in an interprovincial trade. Mixed with Levantine sands, it became raw glass, which was in its turn sent to the secondary workshops of the entire ancient world.

Because it is soluble, natron has left no trace of these movements. There remain, however, numerous indications of the circulation of raw glass in the West, both by sea and by riverine and terrestrial routes (Fig. 9.1). The most significant evidence appears from the Hellenistic period onwards in three wrecks off the south of France. The most eloquent deposit, from the *Les Sanguinaires A* wreck, off Ajaccio, is estimated at a tonne, a cargo that clearly reveals the astonishing capacity of production, at this period, when the process of blowing glass was not yet known. Workshops in the eastern Mediterranean, or in the Punic world, could be the origin of this glass.¹³

During the High Empire, the Syro-Palestinian workshops, which made a bluish glass, dominated the market for raw glass exported towards the western provinces of the Empire. The evidence directly concerning transport is not sufficiently abundant for us to evaluate the place of glass in the trade in raw materials. Some observations on the development of grave goods, in particular *balsamaria*, suggest an increase in the arrival of raw glass from the second third of the first century AD, when the use of small tubular flasks in funerary ceremonies became widespread. The blowing of these *balsamaria* (type 8 in C. Isings's classification¹⁴), always in bluish glass and very common, requires twice as much material as the making of the earlier small flasks in fine and coloured glass (Isings 6) of the Augustan period. The vessels that succeeded them increased even more in density: in the Flavian period, the most common flask is a receptacle with a conical belly (Isings 28) whose average weight is 40 g, or four times as much as the Augustan flasks. The development of these objects as well as the 'democratization' of glassware, which became more and more abundant from the middle of the first century AD in domestic and funerary contexts, show clearly that glassmakers had no problems obtaining all the necessary materials.

The principal archaeological attestations of this trade in the first century AD are the glass blocks found in the secondary workshops of Avenches,¹⁵ Lyons,¹⁶ and Pompeii,¹⁷ as well as in ships (in particular, the wreck from Mjlet in Croatia)¹⁸ or even in dumps at maritime or river ports (finds from Provence and Languedoc).¹⁹ Although modest, the fragments from deposits in the river port at Arles show the penetration of this glass from the Mediterranean to secondary workshops located inland.

¹³ Foy and Nenna (2001: 101–3).

¹⁴ Isings (1957).

¹⁵ Amrein (2001).

¹⁶ Nenna, Vichy, and Picon (1997).

¹⁷ Verità (2001).

¹⁸ Radić and Jurišić (1993).

¹⁹ Fontaine and Foy (2007: 242).

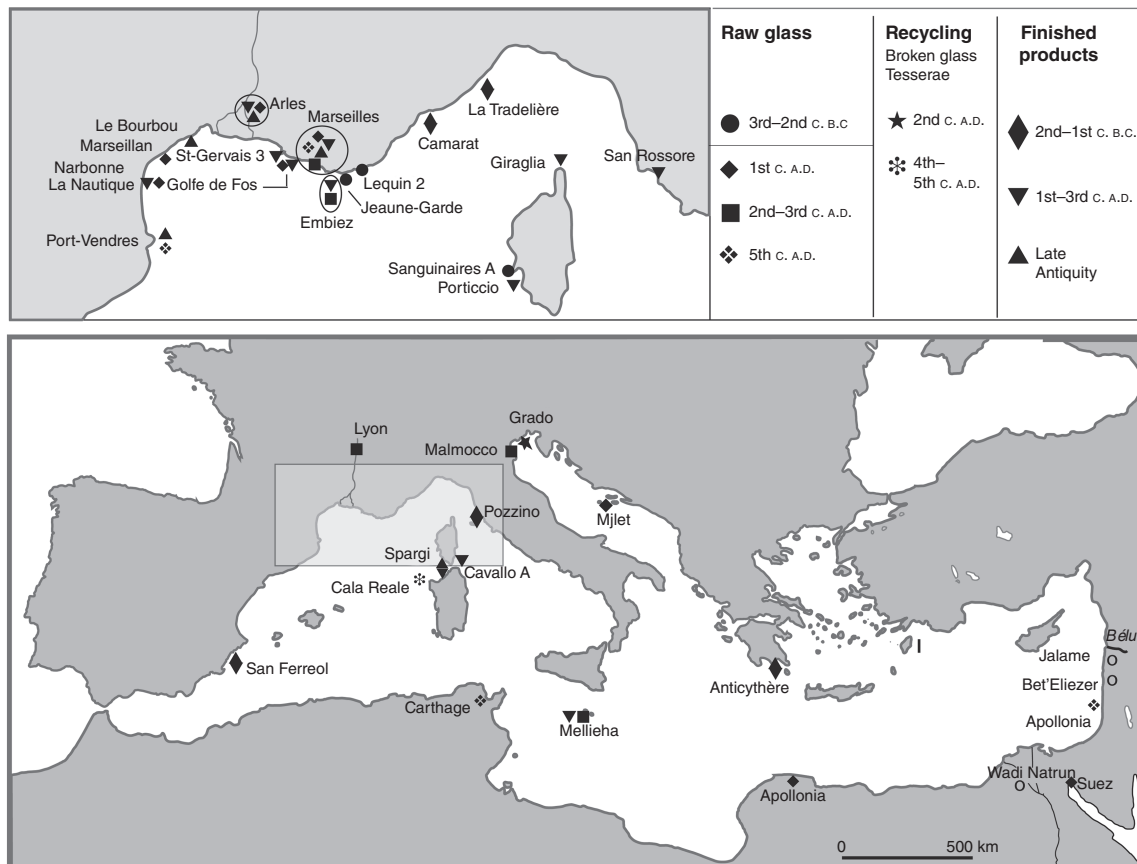


Fig. 9.1. The main evidence of maritime and river trade in raw glass, glass for recycling, and manufactured glass in the Mediterranean during antiquity

Egypt as a producer of raw glass appears turned towards the Indian Ocean in the imperial period. The particular composition of the sands of Mareotis and Wadi Natrun, where the workshops are located, is not found in western glass, with few exceptions. The *Periplus of the Red Sea* (*Periplus Maris Erythraei*), composed towards the middle of the first century AD, mentions the transport of raw glass from the Mediterranean towards the ports of the Red Sea via the Nile. The discovery of two blocks of raw glass in the excavations of the fort of Didymoi illustrates magnificently the route of this merchandise from the Nile to the sea, across the mountains of the Eastern Desert of Egypt.²⁰

In the course of the second and third centuries, the taste for colourless glass spread throughout the whole Empire. This fact seems to reflect the emergence of new areas of production, which took a share of the market that until then had been chiefly dominated by the Levantine production centres. Numerous analyses have been performed on this very common material, which was used to make both sumptuous and very mundane objects: the location of the area—or areas—of production of this kind of glass remains hotly debated.²¹ The most striking evidence for trade in this colourless raw material is the Embiez Ouest wreck on the Provençal coast: this ancient ship, whose cargo was largely composed of raw glass, glass vessels, and windows of different types, is without parallel. Sunk at the start of the third century AD, it was carrying around 18 tonnes of raw glass in the form of large chunks, which must represent the equivalent of one or two slabs of glass from the furnace, and at least 2,000 items of glassware, and some 50 windowpanes.²² No document tells us the value of raw glass and of glassware at this period, but, if one refers to the *Edict of Diocletian*, promulgated a century after the wreck of this ship, one sees that the price of colourless raw glass, to which the term Alexandrian glass probably relates, is relatively high.²³ It has been calculated that this ship would have had to transport 50,000 items of blown glass to equal the value of the 17 or 18 tonnes of raw glass on board. One can see how the transport of raw glass in bulk is clearly less risky and more profitable than carrying fragile glassware carefully packed. That said, we do not know if the colourless glass of the third century AD, which seems banal, had a value equivalent to that which was later accorded to it by the *Edict of Diocletian*.

Other evidence for the circulation of colourless glass is known around the Mediterranean coastline, in the wreck at the Bourse site in Marseilles, and on a river route, in an unloading area next to the Saône at Lyons. Perhaps the ship that sank near the island of les Embiez was carrying its cargo to one of the ports that commanded the approach to the Rhône valley.²⁴

Levantine raw glass was still traded in late antiquity. Chemical analyses show the similarity in composition between western objects and raw glass of

²⁰ Brun (2003).

²¹ Huisman et al. (2009).

²² Fontaine and Foy (2007).

²³ Stern (1999: 460–6).

²⁴ Fontaine and Foy (2007: 260).

the Syro-Palestinian coast.²⁵ We have no direct evidence, however, from underwater discoveries about the arrival of this raw glass in the western Mediterranean.

Other primary workshops, whose location remains unknown, tried to rival the vast Levantine production, and we have proof of this in the waste of a small workshop established on the outskirts of Arles in the second half of the fourth century AD.²⁶ It recycled a colourless glass, very different from that which is found in abundance at the end of the second and in the third century.²⁷

But the greatest disruption in the supply of raw glass occurred at the very start of the fifth century with the arrival of a dark greenish-yellow, but shiny, glass, produced in the Egyptian Sinai.²⁸ This material, which represents over 80 per cent of the glassware used in Mediterranean France at the period, is also very abundant in Catalonia, Italy,²⁹ Africa, and the Black Sea. It was used in the workshops identified at Marseilles, Arles, Tarragona,³⁰ Carthage,³¹ Rome, Classe,³² and probably also in Sicily at Sofiana.³³ We do not know any wrecks transporting this material, which is nonetheless present in the port deposits of Port-Vendres and Marseilles. Outside the Mediterranean region, this raw glass is also reported from Toulouse, in Aquitaine, as well as in the north-east of the Iberian peninsula.³⁴ For three-quarters of a century it was widely distributed and recycled not only as far afield as the workshops of the Atlantic coast, but probably also in more northerly production centres, because it is found in the composition of numerous pieces of glassware and in windowpanes of northern Gaul. From Egypt, probably again, came raw glass that was used in the workshops of Aquitaine, Languedoc, Provence,³⁵ and probably Africa and Italy, which were active in the sixth and seventh centuries, but this material, abundant in the western Mediterranean, was not widely distributed further north. Thus, for two centuries, Egypt captured the bulk of the market in raw glass intended for the workshops of the western Mediterranean.

Broken glass for recycling was probably collected in every town. This practice, well attested in the texts from the end of the first century AD, is hard to demonstrate outside the dumps associated with artisanal quarters. The only evident archaeological example of the circulation of broken glass is the assemblage of fragments found in a barrel from the wreck *Julia Felix*, near Grado (northern Adriatic), dated to the second century.³⁶ This site certainly represents transport over short distances, because the glass items come from the workshops of northern Italy. Unfortunately, however, the evidence is lacking to

²⁵ Freestone, Gorin-Rosen, and Hughes (2000); Foy et al. (2003).

²⁶ Foy (2008).

²⁷ Foy, Thirion-Merle, and Vichy (2004: analysis VRR 711).

²⁸ Foy et al. (2003: 48–55); Freestone (2006); Freestone, Wolf, and Thirlwall (2005).

²⁹ Mirti, Casoli, and Appolonia (1993).

³⁰ Benet and Subias i Pascual (1989).

³¹ Freestone (1994).

³² Tontini (2006).

³³ Narbone (1997: 291).

³⁴ Cruz (2009: i. 74–7).

³⁵ Foy et al. (2003: 55–60).

³⁶ Giacobelli (1997; 2002).

support the hypothesis of long-distance exchange of recycled glass, such as appears in the Middle Ages.

Other semi-finished materials connected with the manufacture of glass are worth mentioning even if they do not represent an important proportion of the trade. The tesserae or cubes of coloured glass frequently found in late antique secondary glassblowing workshops were used as colourants. One can see an illustration of the maritime trade of this glass in the tesserae found in the wreck of the end of the fourth century at Cala Reale, the Asinara 1 in Sardinia,³⁷ coming from Baetica. One cannot entirely exclude the idea that these coloured cubes formed part of an *emblema* or that they might have been used by mosaicists, but the frequent finds of cakes of coloured glass at the sites of mosaic-laying leads one to believe that the semi-finished product of mosaicists circulated in the form of glass disks. One could thus propose the hypothesis that these cubes transported from Baetica (or from Africa?) were used to colour glass, a practice that is reported in the twelfth century, but that already existed at the end of antiquity.

Manufactured glass objects

The circulation of raw glass does not exclude that of glass objects, but there are many difficulties in understanding this trade because the origin of numerous productions remains unknown for various reasons. First of all, the practice of recycling does not always allow us to discriminate between products entering the glassblowing workshop to be recycled from products made on site; the process that means that all the rejects are recycled prevents the formation of workshop dumps. The second difficulty is linked to the fact that very distant workshops apparently produced similar forms, often with the same imported raw glass. This has been observed for the workshops of the middle of the first century AD established at Avenches (Switzerland), Lyons, and Reims, which have a number of products in common. Finally, it is difficult to assess the dynamism of the market on the basis of only very limited evidence: glass, even in the richest contexts, represents only a tiny part of the material culture in use in the Roman world, except in certain necropoleis of the Flavian period.

Glass vessels and windows

Before the last third of the first century BC, glass vessels were almost non-existent in the West, and these objects, decorated or plain, must be considered

³⁷ Spanu (1997).

as luxury items. From this period onwards, moulded bowls made on the Syro-Palestinian coast began to arrive. The most convincing demonstration of this organized trade is the Provençal wreck of La Tradelière, dated around the 30s or 20s BC.³⁸ The glass factories of this period are already present, but in limited numbers in Gaul and Britain³⁹ in some settlements, but especially in elite tombs and sanctuaries, which were the centres of attraction, so to speak, for this material.

Luxury glassware—mosaic cups from Italian workshops of the beginning of the first century AD, mould-blown glass from workshops in the Levant or Asia Minor, pieces decorated with coloured appliqué filaments from the Rhineland workshops of the third century, or the engraved glass or gold-leaf glass of the fourth century from Italian workshops—circulated in small numbers, but the distribution range of certain production centres extended a very long distance.

This trade from west to east and from east to west can be exemplified by some types of objects. Thus, on the shores of the Indian Ocean are found moulded and coloured pieces from the Augustan workshops established in Campania or in the region around Rome. Ribbed cups, aryballoi from Italy and the Near East, moulded glass from the workshops of Sidon, mosaiced pearls from Egypt are found in the Arabian Gulf at Ed-Dur,⁴⁰ in the tombs of Mleiha,⁴¹ and in the necropoleis of Bahrain,⁴² but also in southern India at Arikamedu, where Italian terra sigillata and Italian amphorae are reported. The finds from Begram, interpreted as a royal treasure or as the merchandise from a commercial entrepôt, comprise 180 glass objects dated from the first to the third centuries AD; they provide the most beautiful illustration of the long-distance trade in luxury and common glasswares.⁴³

Goods arriving in the other direction are also traceable. In the middle decades of the first century AD, glass vessels with inscriptions in Greek or even ornamental motifs attributable to the workshop of the glassblower Ennion of Sidon, are present in the Black Sea, the whole of Italy, and the provinces north of the Alps. In northern Italy their abundance is such that it has been supposed that Ennion had a branch workshop there. These vessels also reached the western extremity of the Mediterranean and the most northerly Roman settlements, especially in Great Britain,⁴⁴ as well as Nijmegen and Valkenburg in the Low Countries,⁴⁵ and Tongres in Belgium.⁴⁶

Although luxury Italian glasswares, imported in the Augustan and Tiberian period, have been found mostly in military forts,⁴⁷ others in urban and funerary contexts clearly attest a veritable commerce. The gold-band glasswares (made with gold leaf sandwiched between two layers of plain glass),

³⁸ Feugère and Leyge (1989).

³⁹ Price (1996).

⁴⁰ Whitehouse (1998).

⁴¹ Boucharlat (1989).

⁴² Nenna (1999).

⁴³ Menninger (1996).

⁴⁴ *RIB* II.2, 2419.38.

⁴⁵ Van Lith (1996: 134–6).

⁴⁶ Cosyns et al. (2005).

⁴⁷ Tremmel (2006).

which are some of the most sumptuous items produced in Italy from the end of the first century BC, are rare but nevertheless widely dispersed, the most westerly pieces being from the south of Portugal and the most northerly in England (Fishbourne) and Cologne.⁴⁸ Coloured and worked glasswares, called cameo glass, were also the object of very long-distance trade, as their distribution maps show. From Italy, they were spread to the west through central Gaul, as the very rich assemblage from Nérès-les-Bains shows,⁴⁹ and further to the north in Gallia Belgica and even as far as Norway. To the south, they reached the furthest point of the Iberian peninsula, and, to the east, Iran and Pakistan.⁵⁰

Painting on glass was practised in several glassblowing centres of the second half of the first century AD. These pieces travelled: the large painted glass vessels discovered at Begram (Afghanistan) very probably originated in Egypt. The bowls of type Isings 12, an extremely common form in the middle decades of the first century, could have been made in several places, but northern Italy is almost certain as a production area. Very prized, these glass vessels were distributed to nearly all the western provinces, to the north (principally Switzerland, then Germany, Slovenia, the Low Countries, Great Britain), to Gaul (twelve scattered attestations), but also to Africa and the Black Sea; other finds are attested in Egypt, Palestine, and Asia Minor (Fig. 9.2).⁵¹ The dynamism of the Italian workshops was maintained throughout antiquity, but it is impossible to assess the part played by imports because, as has already been said, the productions of non-Italian workshops active from the mid first century cannot be distinguished from them.

The apparent uniformity of the ordinary glasswares of the first and second centuries AD—that is to say, the undecorated wares blown in bluish or greenish rather than colourless glass—does not indicate the total absence of regional variations. Specific forms have been distinguished in several geographic zones. These characteristic pieces seem to be reserved for regional consumption and are found only exceptionally outside their region of origin. This observation is perfectly illustrated by the bellied pots, intended to contain foodstuffs or to become a cinerary urn, but whose shape lends itself poorly to transport. Thus, the distinctive vases with tronconical belly and handles bent back in the shape of two Rs back-to-back are not found outside the Poitou region;⁵² bulbous, so-called apple-shaped, receptacles do not travel outside their regions of origin in

⁴⁸ Berger and Jouve (1980: fig. 4).

⁴⁹ Moirin (2003).

⁵⁰ Naumann-Steckner (1989); Doderò (2008).

⁵¹ See the list drawn up by Rütli (2003: 357) and Nenna (2008b), to which must be added recent finds in the excavations of the auditorium of Bordeaux, at Nîmes, and at Fos (underwater find), and a discovery in Asia Minor at Xanthos (unpublished; mission directed by de Courtis, excavations of the houses of the acropolis by A.-M. Manière: colourless bowl, no. ACRO 31N/06).

⁵² Simon-Hiernard (2000: 105–9).

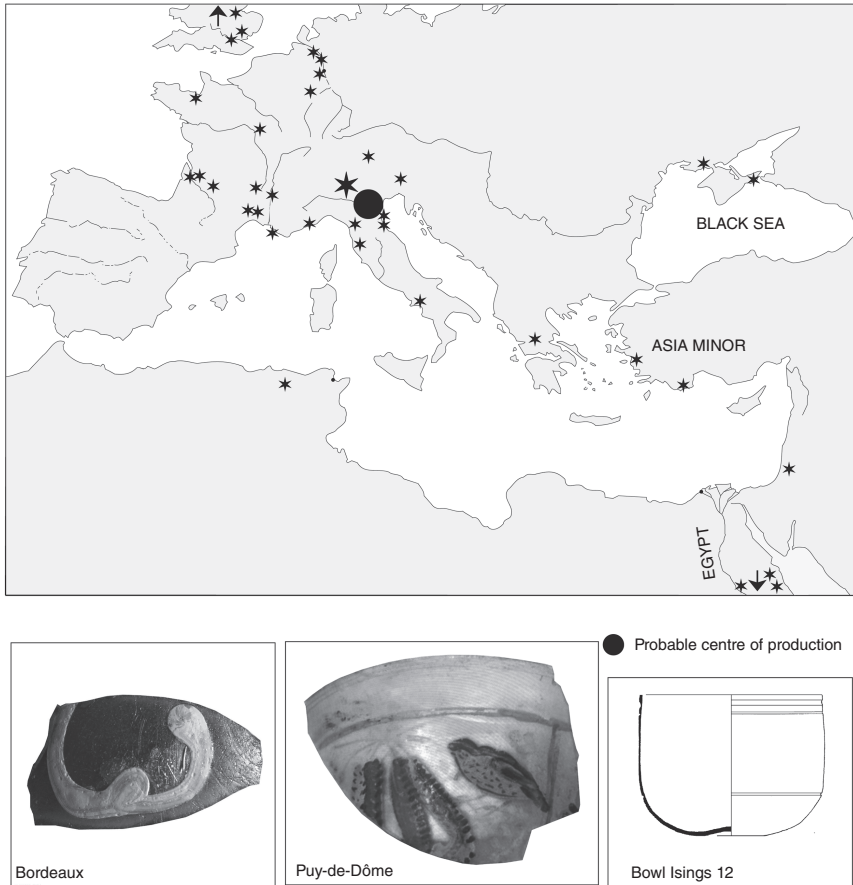


Fig. 9.2. Distribution of painted bowls of the first century AD

Normandy or central Gaul, and the Languedocian pots characterized by ring handles never cross the Rhône.⁵³

One might have expected to discover in port deposits of the second half of the first century numerous glass containers reflecting a trade in liquid food-stuffs. Common forms such as *balsamaria* in blue-green glass, used during the first and at the start of the second century AD (types Isings 8 and 28), are found throughout the whole of the western Roman world, including Africa. As these were rare at sites on major trade routes (wrecks, port deposits, entrepôts, and *mansiones*), it seems that they were not used as containers for the transport of contents, but rather were produced in different places for use in religious

⁵³ Foy and Nenna (2001: 203).

ceremonies. They must have contained ordinary perfumes, which could very well have been made at home with local plants.

The analysis of dumps from Narbonne,⁵⁴ Marseilles,⁵⁵ Arles,⁵⁶ or Monaco shows in fact that the majority of the glasswares found belong to tablewares, chiefly ribbed moulded cups and blown goblets, both widely distributed in the western part of the Empire. The former are traditionally attributed to Italian workshops alone, but that has not been demonstrated, and the latter emanate from various production centres. In addition, those vessels lost in the waters of the Rhône at Arles could be interpreted either as merchandise that had arrived from Italy and was heading upstream, or conversely as products of the workshops of inland Gaul, of whose products only a tiny fraction is known.

Our lack of understanding of glass production can go as far as to make us unable to decide between attributing a piece to western workshops or to the eastern Mediterranean; this is especially true for glass of the second half of the second and third centuries that is blown in a colourless glass. At this period, the most conspicuous imports are traditionally attributed to Rhineland workshops, but they perhaps include other artefacts coming from northern Gaul; they are especially visible in the north and west of Europe and scarcely reach the Mediterranean, where vessels whose precise provenance is unknown circulate. The cargo of glass from the Embiez Ouest wreck includes, besides raw glass, glasswares that could qualify as semi-luxuries: they consist of drinking glasses blown in the same material as the raw glass (glass decoloured with antimony). These forms, which have in common a restrained decoration of appliqué glass threads, all probably come from the same workshop and perhaps from the same region as the raw glass. Their parallels are too few in number and always too dispersed to allow a serious hypothesis to be advanced about their origin. The cylindrical goblets, comparable in some technical details to vessels attributed to several 'continental' workshops, including some established in the Rhineland, certainly have a Mediterranean origin that has hitherto eluded researchers. Chemical analyses do not link these glass objects to Syro-Palestinian productions, but remain unable to suggest a preferred hypothesis. This material could also come from Egypt—where this raw material has been identified—Italy, or the Adriatic coasts—where colourless glass is abundant—or even the Greek world, which very quickly produced colourless glass using antimony. In favour of this last hypothesis, there is also a certain resemblance between the profile of ceramic bowls in *terra sigillata*, called Corinthian relief bowls, and the glass goblets from the wreck, the two being contemporary.

⁵⁴ Feugère (1992).

⁵⁵ Fontaine (2007).

⁵⁶ Fontaine (2008).

The maritime circulation of glass vessels and of window glass in the course of the third century is illustrated by this Provençal wreck and that of Porticcio on the western coast of Corsica; until now we had been unaware that windows, which are merely simple rectangular panels of glass, were the object of maritime trade. In the Embiez wreck are also found a rarer type of window glass, consisting of large convex glass panels, doubtless intended to be placed on the roof, vault, or domed ceiling of a bath building for overhead lighting.⁵⁷

Of the commerce in glass in late antiquity, we see principally, as with the preceding periods, the luxury pieces. The pieces decorated with umbilical and coloured cabochons, very characteristic of Rheinland workshops, are widely distributed in the neighbouring regions and, in smaller numbers, as far as the Narbonnaise (Arles, Port-Vendres) and the north-east of the Iberian peninsula (Léon). Engraved glass vessels that from their manufacture and iconography are attributable to the productions of the Rheinland, Moselle valley, or Rome are found in Great Britain, Gaul, the Iberian peninsula, and Africa. Do these beautiful objects always reflect a real trade or are they merely souvenirs brought back from travels and notably from pilgrimages to Rome or other holy places in the eastern Mediterranean? The question is equally worth posing for the little glass pendentifs made in Palestine or Syria and considered either as pious souvenirs or as protective amulets. They are found in fact throughout the whole of Europe and in North Africa.

Glass containers

The majority of glass bottles probably travelled full. They were receptacles for foodstuffs, but also for more costly products: perfumed oils, unguents, and medicaments. These containers are recognized as being objects of trade by their discovery on sites on trade routes, or by a shape reflecting a particular origin, or if they carry a specific stamp.

Underwater finds

Although glass receptacles are not commonly present in port dumps, they have nevertheless been identified in some wrecks, but it is not always clear how to distinguish cargo from shipboard equipment. No wreck has been found that was carrying glass bottles as its principal cargo. Bottles are only a small complement to the main cargo. The square bottles found on the Lavezzi wreck, and particularly the assemblage of fourteen pieces coming from a scatter at Cap Camarat, illustrate this. The ten *unguentaria* stowed in a basket,

⁵⁷ Foy and Fontaine (2008).

discovered in the wreck Saint-Gervais 3, are a rare but certain illustration of the import of glass vessels from Baetica.⁵⁸

Eastern Mediterranean forms

From the middle of the first to the start of the third century AD, the influx of Levantine glass, although less numerous than the Italian products, is more diversified, insofar as bottles become more common. Among these receptacles, traded probably for their contents, one can distinguish several groups. Small mould-blown bottles, decorated with figured motifs in frames, or masks or fruits, a decoration characteristic of the Syro-Palestinian coast, are found in the rich grave goods of the middle decades of the first century AD in Aquitaine⁵⁹ and Narbonnaise.⁶⁰

Other less luxury vases of different shapes have in common a collar-like rim, made by folding down and up, which identifies them as products of Palestine or Asia Minor of the start of the second century. Relatively numerous in the Rhône Valley (found in tombs, houses, and shops), they prove that exotic perfumes were much sought after in this region.⁶¹ There is also, in Narbonnaise and along the whole of the western Mediterranean coast, a series of bottles dated from the second and third centuries AD, from Palestine and Cyprus. In the cemeteries of Arles, the abundance of *unguentaria* of the type De Tommaso 54 is remarkable.⁶² These links with the eastern Mediterranean are perhaps explained by the presence of a community of easterners in this town.

Vessels with stamps

A certain number of receptacles, of common form and almost exclusively discovered in the western provinces, were stamped during manufacture. The meaning of these very diverse stamps has not been perfectly elucidated, but they probably refer to the producer of the contents or to someone who profited from the sale of those contents: private merchant, town, or the state. In some cases, the stamp might also signify the nature of the contents. A corpus of these stamps, currently in the process of compilation, will enable us for the first time to study their distribution.⁶³ This distribution shows that some vessels were intended for local distribution, others for a regional trade, and others still for interprovincial exchange. These vessels were occasionally the

⁵⁸ Foy and Nenna (2001: 109).

⁵⁹ Maurin (1978: 123 and figs 152, 153); Chew (1988).

⁶⁰ Bel (2002: 417–18).

⁶¹ Foy (2003b: 100, 107); Roussel-Ode (2008: 296–7).

⁶² De Tommaso (1990: 74).

⁶³ The study launched on the initiative of the *Association Française pour l'Archéologie du Verre* has produced three volumes: CSMVA (2006a; 2006b; 2011). The results of a comparable research project focused on Italy should soon appear (by the Italian committee of the *L'Association Internationale pour l'Histoire du Verre*).

object of a trans-Mediterranean commerce from west to east. Imports from the eastern provinces to the western Mediterranean are rare, but are attested, particularly in late antiquity.

Stamped containers appear mainly in the western provinces between the third quarter of the first century and the fourth century AD. The most commonly stamped forms are:

- large vessels, sometimes in thick blue-green glass: bottles and square jars, rectangular and hexagonal bottles, and miniature barrels;
- bottles of a particular shape, narrow and with a square cross section, in glass that is always colourless and very thick; these vases are called 'Mercury bottles' because their stamp often carries the image of the god Mercury.
- small bottles in fine fragile glass intended for the bottling of perfumes; some analyses have revealed traces of vegetable oils (resin or gum). They were hermetically sealed with wax.⁶⁴

The proportion of stamped receptacles in each series is extremely variable. Although no precise count has been established, we can give a quantitative estimate of stamped pieces (Fig. 9.3).

The most numerous are the miniature barrels, dating mainly from the third and fourth centuries. Almost all the examples, with the exception of the pieces made in a very small format, have a circular epigraphic stamp that suggests that these glass vessels were intended for a specific product distributed and consumed in the north-western provinces, because they are never found in southern regions.⁶⁵

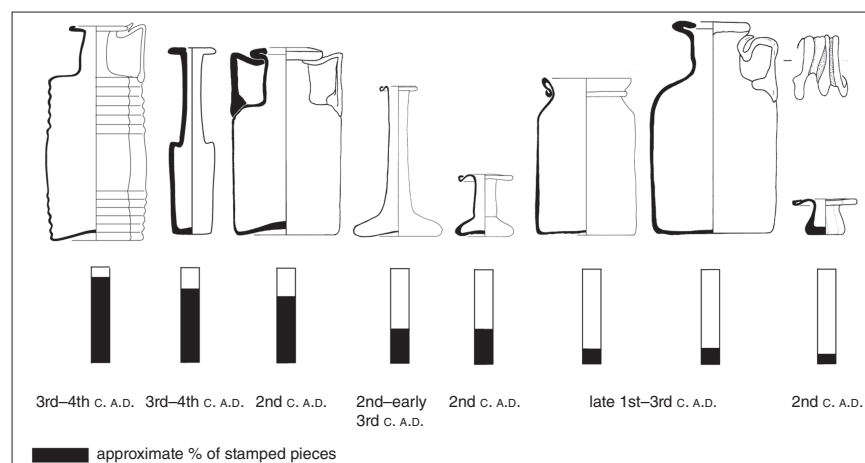


Fig. 9.3. Percentages of stamped vessels in each category

⁶⁴ Massart, Fontaine-Hodiamont, and Saverwyns (2004).

⁶⁵ Cabart (2006).

Contemporary with the aforementioned vessels, the Mercury bottles that circulated widely are also very often marked with names, symbols, and abbreviations or geometric motifs (70–80 per cent). The rectangular bottles made in the course of the second century AD, and not common in the Mediterranean regions, are stamped in almost the same proportions, but the stamp is often reduced to a simple lozenge. These three types of glass vessels were made in moulds, which perhaps explains why the stamps are common.

Of the *unguentaria* intended to contain perfumed oils, two types are usually stamped; some examples of these forms (c.25 per cent), dated during the second century AD and the Severan period, carry a stamp combining an inscription and a symbol.

The stamps of all these types of glass vessels (miniature barrels, Mercury bottles, rectangular bottles, and *unguentaria*) are repeated and thus constitute series; variants in the motifs and the templates attest the use of multiple moulds. In a very few cases, the same stamp appears on pieces of completely different shape. A small fraction of the jars and the square bottles (between 10 and 20 per cent) is truly stamped (the concentric circles common on the bases are not considered as stamps). This form, which is the first container to receive a stamp (from the third quarter of the first century AD onward), is nevertheless the most widespread and had the longest lifespan. The stamps are very varied; only those that constitute a series are of interest for the study of trade. We also know a few rare miniature jars with stamps.

To give an idea of the commerce in goods carried in glass containers, I have selected for discussion several marks stamped on jars and square bottles, on rectangular bottles, and on *unguentaria*. The same demonstration could be made with Mercury bottles; by contrast, the miniature barrels did not circulate in the Mediterranean region.

To illustrate a local market, we can examine several stamps concentrated in one region, a micro-region so to speak (Fig. 9.4). In the west of Gaul and more precisely around Poitiers, the stamps CNAI O and IECD or IEOD on bottles and square jars⁶⁶ or again the symbol of the double thunderbolt on rectangular bottles, dated to the second century AD, signify local products that only exceptionally travelled outside their region of origin;⁶⁷ a single example is known at Arles.⁶⁸ The same observation could be made regarding the stamp LMT, perfectly concentrated in three towns in the north-east of the Iberian peninsula: Braga, Astorga, and Lugo.⁶⁹ The same type of commerce can again be deduced from the distribution map of three stamps on *unguentaria* found in Narbonnaise, but uniquely concentrated in the Rhône valley. The name VALERIAN around a palm, encountered six times, the incompletely deciphered stamp CORICO[—] or again the name LIZA/MAM indicate the existence of

⁶⁶ Cabart, Foy, and Nenna (2006).

⁶⁷ Moirin (2006).

⁶⁸ Foy (2006).

⁶⁹ Cruz (2009: ii. 236).

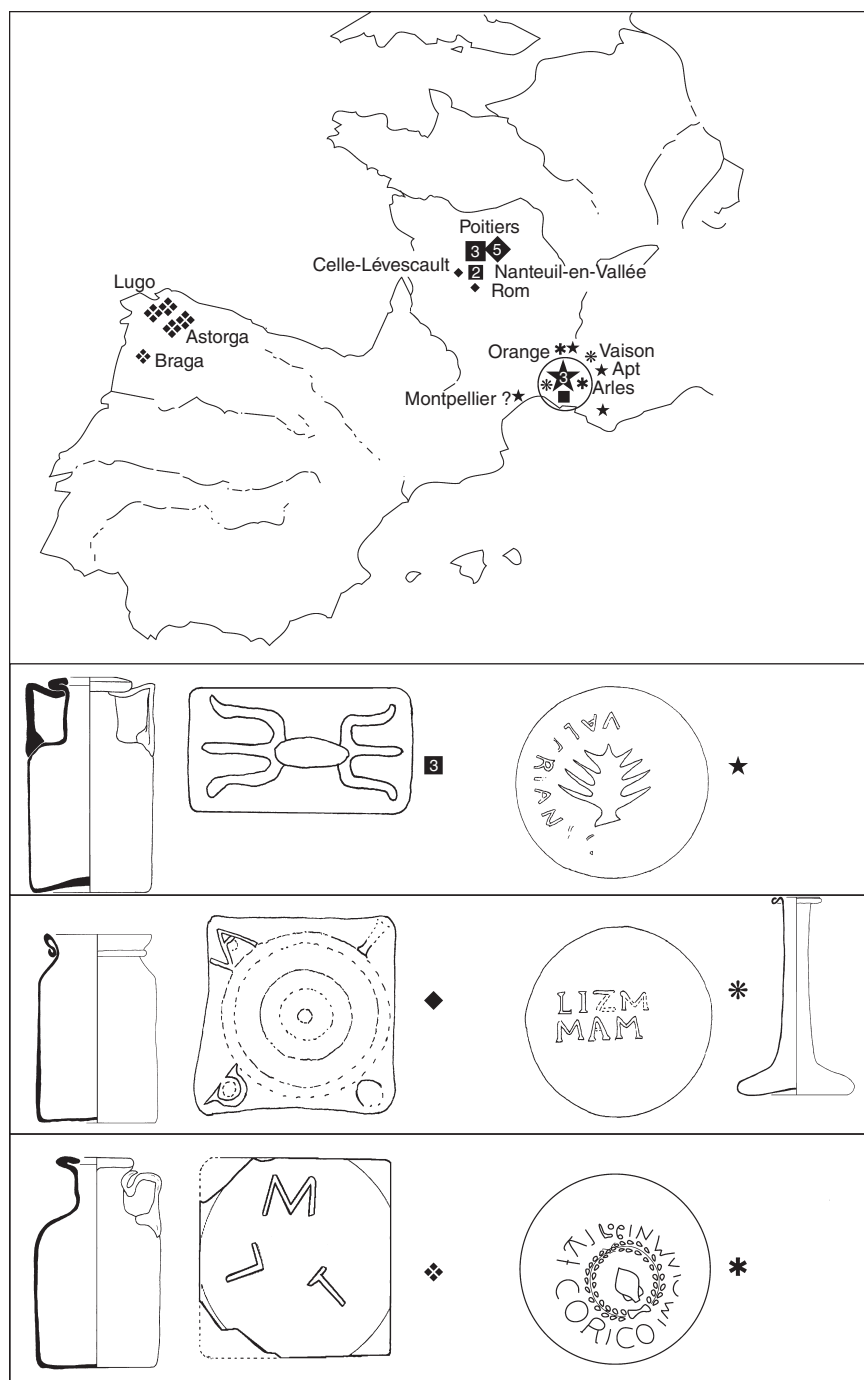


Fig. 9.4. Stamped vessels attesting local trade

workshops making bottles, and also aromatic substances, which were hardly distributed beyond an area bounded by Arles, Apt, and Orange.

The Iberian and Italian evidence provides examples of the distribution of receptacles in glass within a restricted perimeter, but much larger than the preceding examples (Fig. 9.5). One notes, in effect, that some ten square bottles stamped LLF and LIT are found only in the western half of the Iberian peninsula.⁷⁰ Other pieces present the unusual image of a squirrel gnawing a nut; we do not know their origin: the animal motif is similar to several stamps found in Spain,⁷¹ but the findspots suggest production in northern Italy. Four finds, made at Zelbio near Lake Como,⁷² at Chur in Switzerland,⁷³ and at Faimingen in Raetia,⁷⁴ point to a commerce of limited radius but going beyond a purely local or micro-regional framework. Likewise, the bottles from northern Gaul stamped NASSOMA or MANUSSO⁷⁵ seem to reflect regional consumption. The stamps CCAA and CCCP, which refer perhaps to cities (see below), are very concentrated in the valley of the Rhine and also provide excellent examples of a short- or medium-distance distribution.⁷⁶ The small stamped unguent jars are not very common: the only ones found have a stamp with a wreath and are found in a distribution between Tongres, Reims, and Augst. The production or packaging of the balms or ointments they contained can probably be located in Lower or Upper Germany during the course of the second century. In these regions, no original stamp is known on *unguentaria*, which does not indicate the absence of traders in cosmetics. These costly products (unguents, aromatic mixtures, eye lotions) were packaged in these little jars and particularly in Mercury bottles with various stamps. But, while the small vessels scarcely travelled, the Mercury bottles of the third and beginning of the fourth century AD, originating from different centres in the Rhineland and Italy (the Po Valley, and Rome), were the object of long-distance trade. This very widespread distribution and the absence of a systematic classification of the Italian finds do not allow us clearly to identify the centre of production of the most common stamps. By way of example, one could cite the stamp GFHI, common in the Rhineland,⁷⁷ but often found in Italy and notably at Rome,⁷⁸ reported also from Pannonia, and scattered throughout the whole of Gaul as far as the Mediterranean.⁷⁹

Long-distance trade in probably edible commodities carried in the square bottles is traceable through the distribution of particular stamps, although these are limited in number (Fig. 9.6). Imports from Italy and Spain are thus

⁷⁰ Price (2006); Cruz (2006).

⁷¹ Price (2006: no. E-CAR 037, 038).

⁷² Taborrelli (1995: fig. 7).

⁷³ Amrein (2006: no. CH126).

⁷⁴ Rottloff (2006: no. D-RA 105, 106).

⁷⁵ Cabart, Foy, and Nenna (2006).

⁷⁶ Follmann-Schulz (2006: 82); Sablerolles (2006: 29–30).

⁷⁷ Follmann-Schulz (2006).

⁷⁸ Sternini, Agricoli, and Mazzei (1997: 60); Del Vecchio (2004: 41).

⁷⁹ Arveiller (2006).

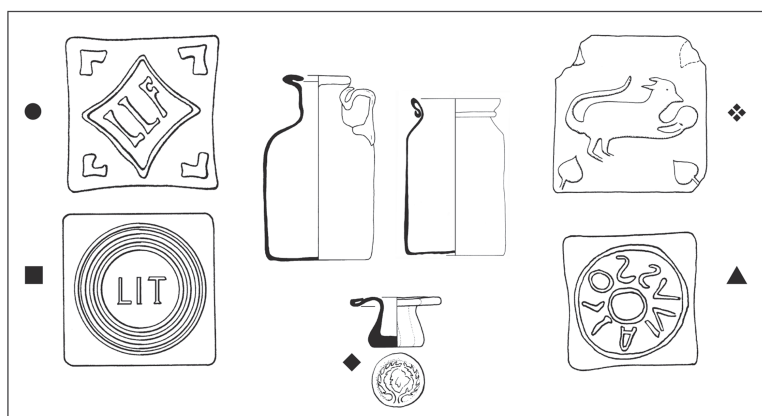


Fig. 9.5. Stamped vessels attesting regional trade

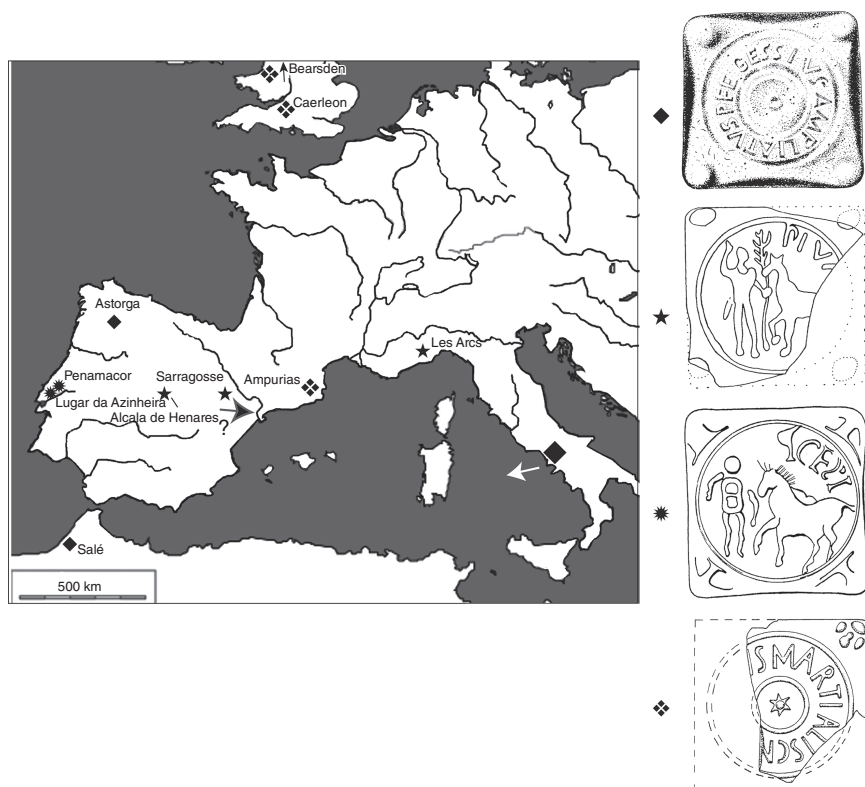


Fig. 9.6. Stamped vessels attesting inter-regional trade

identifiable. The stamp *P. GESSIVS AMPLIATVS*, one of the earliest, is concentrated in Italy in the Vesuvian region. Outside this area, it is only known from Mauretania Tingitana (Salé/Sala) and in north-east Spain at Astorga.⁸⁰ A stamp representing a winning charioteer and his horse appears in two variants in the Iberian peninsula. One piece, comparable to an example with the name *PIVS* reported from Alcalá de Henares⁸¹ and Zaragoza,⁸² was found on the Provençal coast and probably attests a commercial link with Spain in the course of the second century.⁸³ We cannot, however, say whether the stamp *GN ASINIVS MARTIALIS* found on square and rectangular bottles of the second century reflects imports from Spain towards Britain or a movement in the opposite direction.⁸⁴

⁸⁰ Cruz (2009: ii. 308).

⁸¹ *Ludi romani* (2002: 211).

⁸² Unpublished piece, information from E. Ortiz Palomar; study in progress.

⁸³ Cabart, Foy, and Nenna (2006: 99).

⁸⁴ Price (2006: 291); *RIB* II.2, 2419.106 and 107.

Two other types of square bottles that probably emanate from important firms were the object of a more dense and probably more regular commercial traffic, because these objects form a fuller series (Fig. 9.7). These inter-provincial transports, however, almost never link the countries of the Mediterranean with the northern provinces. For a long time the distribution of the stamp formed of the letters AF inscribed in a Q has attracted attention.⁸⁵ This stamp, which presents several variants, as do the majority of the others, appears on a score of pieces of which half are from Britain, the remainder being from the Low Countries and the Rhineland. Some isolated pieces, known from Avenches⁸⁶ and in the centre of Gaul (Bourges, Saint-Paulien),⁸⁷ seem to indicate that the contents of this container were appreciated by a large part of the population. Still more numerous, but emanating this time from a trader established in northern Italy, the receptacles (bottles and square jars) stamped C SALVIUS GRATUS, probably of the very beginning of the second century AD, were distributed in Italy through the Po Valley and the Adriatic (Italy, Slovenia). In a still more intense fashion, they were sent to the north of the Alps (Switzerland, Austria, Germany), chiefly in Raetia, where the greatest number of pieces are known, to the point where it has sometimes been seen as another production centre.⁸⁸ The variety of moulds used makes it difficult to count the fragments, but more than fifty pieces may be registered. Mostly traded by river (Po and Danube) and overland routes, but also by sea (the Adriatic), the contents of these vessels did not interest—or only very minimally—the Mediterranean market. Two Provençal pieces are perhaps the most southerly and at the same time the most westerly examples.⁸⁹ To finish this rapid *tour d'horizon* of the trade in stamped square bottles, it is necessary to mention the most distant imports. Very few glass items made in the eastern provinces in the imperial period seem to have been stamped. The three receptacles discovered in Narbonnaise and on which are stamped exotic animals (elephant and dromedary), accompanied by an inscription in Greek, could indicate imports from the eastern provinces or Africa (?) in the first half of the second century AD.⁹⁰ Other finds, in Narbonnaise but also in Italy, also carry Greek inscriptions: they reflect late antique productions possibly situated in Asia Minor.⁹¹

Bottles for aromatic and medicinal substances, *unguentaria*, and Mercury bottles are the glass items that travelled the most. One could say, with some simplification, that the Mercury bottles embody the commerce in these luxury products from Germany and northern Italy, while the *unguentaria* essentially

⁸⁵ Price (1978).

⁸⁶ Amrein (2006).

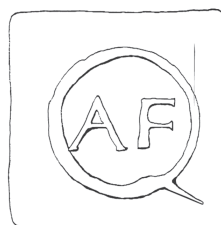
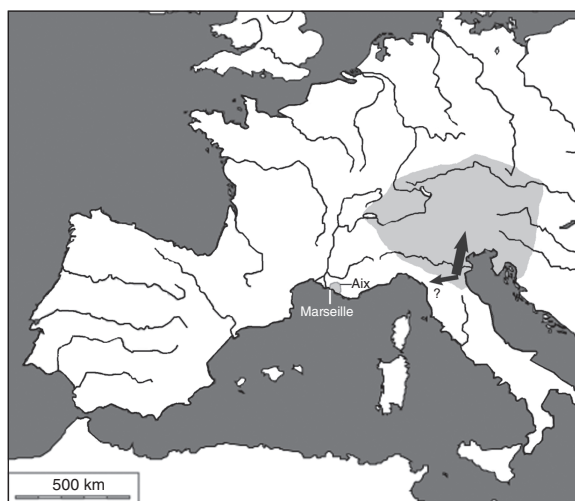
⁸⁷ Cabart, Foy, and Nenna (2006: 83 and 101).

⁸⁸ Rottloff (2006).

⁸⁹ Cabart, Foy, and Nenna (2006: 86).

⁹⁰ Cabart, Foy, and Nenna (2006: 87); Fontaine (2010).

⁹¹ Foy and Nenna (2006b); Triantafyllidis (2006).



and variants

Fig. 9.7. Stamped vessels attesting inter-regional trade from northern Italy (top) and Britain (below)

reflect distribution from Italy and principally the region of Rome.⁹² The two types of container cover geographical areas that intersect, but the *unguentaria* are naturally more abundant in the regions close to Italy. We will try here to provide a survey of the market for these cosmetics through the distribution of some stamps on *unguentaria*.

Perfume bottles made in northern Italy were intended, like the bottles of Caius Salvius Gratus, for a market oriented towards the north: the findspots of pieces stamped with the letters QDE/LPF or V D flanked with palms⁹³ clearly reflect the usual commercial circuits. Very common and widespread in northern Italy, from Turin to Verona and Urbino, these glasswares are recognized as regional products, both by their stamps and by their bell-shaped profile. Their distribution towards the north, outside Italy, is less important but nevertheless marked by finds at Lubiana and Ovilana in Upper Austria⁹⁴ and at Cologne.⁹⁵ The discovery of large receptacles bearing apparently the same stamp (expanded as Q DANIVS EVHELPISTVS) prompts one to wonder if the same product was also traded in larger containers, or if the same enterprise traded different commodities under the same name.⁹⁶

Completely different is the route taken by perfumed oils produced or bottled probably in central Italy (Fig. 9.8). The most common STAMPS, CSC with a cock, SPS CAF and SPS CPD surrounding an image of Athena or Mercury, A. VOLVMNI IANVARI and CN.A.ING.V.A.V.M., known from several tens of examples, are chiefly found in Italy, but were traded throughout the whole of Gaul (mainly in Narbonnaise), part of Germany, and Britain; curiously, the Iberian peninsula was not involved in this market, although it probably used maritime routes. The routes along which the stamp PR.MANC.AR was distributed appear by contrast different, since they seem to link the south of the Iberian peninsula to Italy and are rare outside these countries; it has, however, been pointed out that the Spanish pieces have a conical profile, specific to the products of Baetica;⁹⁷ should one conclude from this that the same stamp was applied in workshops that were very distant from each other? The place of production and the mode of distribution of the bottles stamped C. LVCRETI FESTIVI are still less certain. This not particularly common stamp is, paradoxically, extremely widely dispersed. It is present in Italy,⁹⁸ in Britain,⁹⁹ at Trier,¹⁰⁰ in the Parisian region, and at Arles (unpublished discovery); the conical profiles of sufficiently

⁹² Some rare stamps found only in Britain (*RIB* II.2, 2419.87 and 88) or distributed in Germany and Gaul but apparently absent from Italy (stamp M.I.S.C.M.V known in Belgium: Vorsen, Tongres; in Germany: Xanten; in France: Besançon, Tours, Méasne, Vaison, *Ambrussum*, Lyons, and Autun) might originate in the northern provinces.

⁹³ De Tommaso (1990: 57, 91); Taborelli (1995); Larese and Zerbinati (1998: 123, no. 4); Mandruzzato and Marcante (2007: no. 227).

⁹⁴ Glöckner (2006: no. AUS 71).

⁹⁵ Fremerdorf (1961: 49).

⁹⁶ Taborelli (1998).

⁹⁷ Price (2006: 286).

⁹⁸ Nenna (2006: 202–3).

⁹⁹ Cambridge: *RIB* II.2, 2419.102.

¹⁰⁰ *CIL* XIII, 10025.8.

well-preserved bottles resemble items from Baetica, but no find from that province supports the hypothesis that they actually came from there.

Many scholars have wondered about the meaning of these very different stamps.¹⁰¹ The names of people, on the jars and square bottles, on the miniature barrels, both of them being early in the series and dating to the middle of the first century AD, and the *unguentaria*, preceded by EX O, such as EX OF(FICINA) TITIANI HYCINTHI¹⁰² or EX OFF(ICINA) M(ARCI) EPR(. . .) CLEM(ENTIS)¹⁰³ or followed by F or FECIT, such as FELIX FECIT¹⁰⁴ or CHRISIMUS FECIT,¹⁰⁵ unquestionably refer to the owner of a workshop. But what type of workshop? It is generally agreed that this is not the glass workshop, but the centre producing the contents. C(aius) Salvius Gratus, Gn(aeus) Asinius Martialis, Q. Danius Euhelpistus, or A(ulus)Volumnius Ianuarius, to cite only some of the most common *tria nomina*, would thus be the producers or the traders of the foodstuffs or cosmetics bottled in these vessels of glass, a fragile material to be sure, but perfectly watertight and odourless and thus well suited to these contents.

The state might be the proprietor, the producer, or the controller of the perfumed oils and other costly substances traded in these stamped bottles. Stamps referring to state authorities have been listed:¹⁰⁶ PATRIMONI and its derivatives are the most common and most widespread stamps; they are found on *unguentaria* of variable sizes and shapes, of which the majority certainly issue from Italian workshops, but the close study of variants and profiles of the glasswares that carry them could help in circumscribing more narrowly the places of production and the controlling offices. Thus it is clear that the stamp PATRIMONI, formed of well-stamped letters, thick and regular, generally encircles a Victory that is not very legible. This stamp occurs most commonly on a squat bottle, of variable size, in relatively thick and almost colourless glass. This very widespread form is found throughout the whole of Italy and especially at Rome, in Narbonnaise, at Tarragona,¹⁰⁷ in Switzerland,¹⁰⁸ at Trier,¹⁰⁹ and at York.¹¹⁰ There exists, however, a derivative stamp, probably specific to the northern provinces as the location of the five discoveries seems to prove: on these large bottles, PATRIVMONIUM surrounds a small figure represented in motion, probably Mercury (Fig. 9.9).

In addition to PATRIMONI and its derivatives, there are other state stamps that indicate either that the contents come from imperial estates or that they are controlled and taxed by the state: VECTIGAL PATRIMONI, VICTORIAE AUGUSTOR(UM) FEL(ICITER) V(ICTORIAE) P(ARTHICAE) and PRO.MANC.B.C.AR (already mentioned), are

¹⁰¹ Frova (1971); Tadorelli (1982; 1983). ¹⁰² Whitehouse (2003).

¹⁰³ Foy and Nenna (2006a: 146). ¹⁰⁴ Sablerolles (2006: 16–17).

¹⁰⁵ RIB II.2, 2419.101. ¹⁰⁶ Sternini (1993: 86–8). ¹⁰⁷ Price (2006: 299).

¹⁰⁸ Amrein (2006). ¹⁰⁹ Goethert-Polaschek (1977: no. 74).

¹¹⁰ RIB II.2, 2419.131.

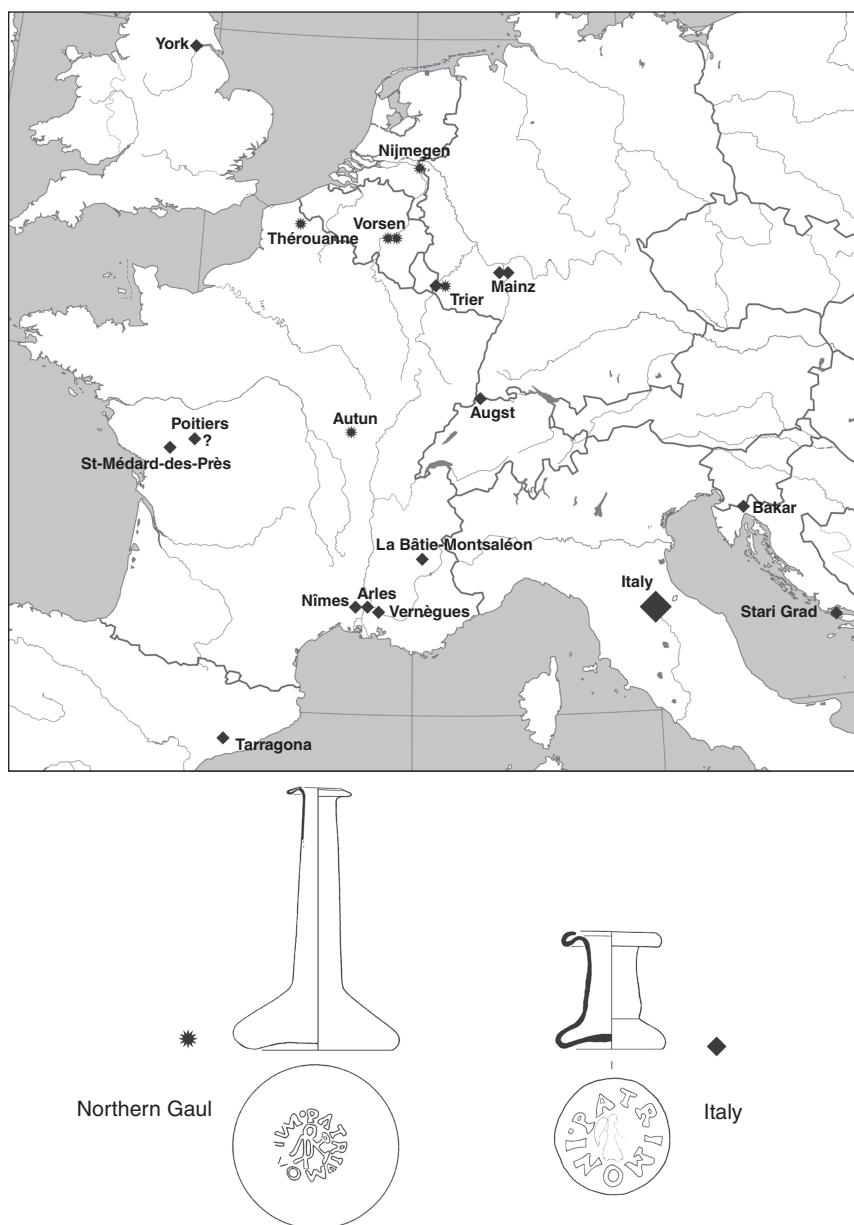


Fig. 9.9. Distribution of two types of *unguentaria* bearing two variants of the state stamp PATRIMONI emanating from two centres: Italy and probably northern Gaul

the most common. The stamp AVG, like that which is visible on Dressel 20 amphorae, is unique insofar as it is present only, and in very great quantities, in the Iberian peninsula (a hundred examples)¹¹¹ and in northern Morocco. One might have expected that these bottles, heavily concentrated in the Rio Tinto region, which was well connected to long-distance trade routes, might have travelled beyond the Iberian peninsula. It seems, on the contrary, that the perfumed oils of these *unguentaria* were almost exclusively consumed in Baetica. One might suggest that we are perhaps dealing with aromatic substances from the eastern provinces, brought by those who came in search of the minerals of Baetica, and that they would have been repackaged in the stamped bottles. The perfumes could have come from imperial estates or indeed private ones. In this latter case, one would imagine that a tax was levied by the imperial authorities.

Some complex stamps carry indications, either spelled out or in the form of a monogram, naming the town where the product was bottled or taxed: PATRIMONI F(ISC)I RATIONIS/RAVEN(NATIUM), dated to the third century AD. J. Price,¹¹² expanding the stamp PRO(CVRATORIS) MANC(IPIORUM EX) B(ONIS) C(ADV)CIS AR(VCCI or VAE), found in Baetica, suggests that the contents, coming from a property acquired by the state, were traded under the authority of a procurator—the letters AR referring to a town near Rio Tinto. The letters (S, V, or AF) placed in the middle of the very widely distributed stamp with the circular inscription CN.A.ING.V.A.V.M. (Fig. 9.8) have been seen as a reference to a town that might be either the place of production, bottling, or sale of the product contained, or even an administrative centre. Some stamps refer directly to a town: the letters placed in the angles of some square bottles could be the abbreviation of the name of a colony. It has been proposed that the letters CCAA (*Colonia Claudia Ara Agrippinensium*) should be identified with Cologne.¹¹³ Other common stamps also from the Rhineland such as CCCP ought therefore to have a comparable significance. This interpretation would imply that the trade in certain products was under the control not of an individual or of a private firm, but of a city—unless the reference to the town is merely a mention certifying the origin and consequently the authenticity of the product. The interpretation of these stamps is, however, disputed.¹¹⁴

One might think that the stamped *unguentaria* contained the most popular aromatic substances; these commodities travelled, but perhaps no more than those in containers that were anonymous or originally distinguished by a label. No perfume bottle from the eastern provinces is stamped. Aromatic mixtures might arrive in bottles with a tag or even in phials whose wax stoppers were stamped. Perhaps the shape of the container, identifiable to the eyes of connoisseurs, could guarantee the origin. Other perfumes might also have

¹¹¹ Price (1977; 2006).

¹¹² Price (1977).

¹¹³ Follmann-Schulz (2006: 82).

¹¹⁴ Sablerolles (2006: 29–30).

been imported in large containers, and then rebottled in the stamped *unguentaria*.

The content of the large glass containers is unknown. The large square bottles (mid-first century to end of the second century AD), the rectangular bottles (second century AD), and the miniature barrels (mainly third century) were used in numerous areas, but rarely (square bottles) or never (miniature barrels) in the Mediterranean regions. All these vessels, made in moulds, are found in several formats; their method of manufacture encouraged their standardization and the calibration of their capacity to achieve precise volumes. The miniature barrels, chiefly in use in the third and fourth centuries, seem to replace the square and rectangular bottles used at the end of the first century and throughout the second century. One can only conclude from this that they were all intended to contain the same product. The miniature barrels are poorly suited for transport, as they are made of thin glass, much more fragile than that of the earlier bottles. The shape of the miniature barrels naturally suggests a drink. Several analyses performed on the preserved contents show, however, that it was not wine nor another alcoholic beverage.¹¹⁵ The oleaginous substances detected are difficult to interpret,¹¹⁶ but, if one admits that this distinctive packaging, this sort of 'design', reflects a wish to indicate a specific product, it could only be a foodstuff commonly consumed from Britain to Germany. The miniature barrels are extremely widespread in the north of Gaul and the Rhineland, where several workshops have been identified through the distribution of the main stamps on these vessels. By way of example, the stamp M Q CASI NOCTVRNI, one of the oldest (end of the second century AD?), is from Burgundy, COM FOR FRON originates in north-east France, the STAMP CEREI ATTICI is found mainly in eastern Gaul,¹¹⁷ while the stamp ECVA emanates from the Rhineland glass workshops of the fourth century AD.¹¹⁸ These marks probably served to distinguish the origin or the quality of the products, which were mainly consumed regionally, although imports from northern Gaul to Britain are significant,¹¹⁹ and a Rhineland miniature barrel reached Lyons.¹²⁰

The residue analyses that have been performed have not been able to identify with certainty the principal contents of the miniature barrels. The fatty materials discovered could be traces of condiments preserved in oil, or perhaps even *garum* made from fatty fish (?). Given the enormous capacities of some fish-salting and *garum* factories on the coast of northern Gaul that are now known, one could imagine that others might also have served regional demand.

Bottles and square jars travelled much less than perfumes. Only a few pieces were stamped with inscriptions that refer to the issuer (producer or merchant)

¹¹⁵ Mahéo (1990: 276).

¹¹⁶ Gaitzsch et al. (2000: 128).

¹¹⁷ Cabart (2006).

¹¹⁸ Gaitzsch et al. (2000).

¹¹⁹ Price (2011: 26–7).

¹²⁰ Foy (2011: 89). For a more synthetic approach, now see Foy (2015).

of the contents, or were stamped with extremely varied motifs whose significance remains unclear. Were these symbols, made of geometric or figured motifs, the logo of an enterprise or even a direct allusion to the product bottled inside? If the images of a fish and an anchor visible on containers from the Iberian peninsula allude to the products of the sea, many others (representations of objects or animals) remain incomprehensible. In some very rare cases, we have been able to relate stamps on amphorae and on glass. The stamp *LIT* visible on olive-oil amphorae from Baetica and on some square bottles found in the south of Spain might indicate that the containers in glass were also intended for olive oil. The extreme diversity of the stamps of which only some form a series allows one to imagine multiple products and origins, and, by consequence, numerous people employed in the production and commerce of these foodstuffs. This situation is very different from that which one imagines for the industry and trade in cosmetics, dominated mainly by some private and state enterprises. But clearly we do not know the importance of this commerce, which is impossible to grasp through the unstamped vessels that are also difficult to differentiate by shape alone.

CONCLUSIONS

Raw glass was the object of long-distance trade throughout the whole of antiquity. Chemical analyses enable the identification of the Syro-Palestinian or Egyptian origin of some of this semi-finished material. These exchanges express the dependance of the secondary glassblowing workshops in the west on eastern sources. This heavy material, probably with a strong value-added element, could have been a very popular cargo.

Manufactured glass items also entered into the circuits of trade. The circulation of luxury glasswares is clearly the most visible, but typological analysis, and certain contexts of discoveries (wrecks and port sites) show that other common tablewares also travelled.

The distribution of products bottled in glass containers is harder to identify through the same criteria, but the stamps reveal objects intended for a local clientele, a regional market, and those that entered into the circuits of long-distance trade. They could also lead one to think that certain products were traded privately and that others were controlled by state authorities; certain interpretations suggest also that cities sometimes played a role in the production, the trade, or the guaranteeing of the origin of the commodities bottled in the glass vessels.

Aromatic and pharmaceutical substances appear as products that travelled the furthest, but also as the products on which the imperial authority

intervened, as witness the very great abundance of the stamp *PATRIMONI* and its derivatives applied on *unguentaria*. By contrast, the stamps on Mercury bottles—which probably held a similar and highly profitable content—show no signs of connection with an imperial authority.

This sketch of the trade in glass in antiquity leaves much room for doubt and questions. The interpretation of distribution maps, the resolution of stamps, whether on glass or on other materials, are never certain and can never command unanimity. The data on which research on the distribution of glass is based remain particularly thin, disparate, and scattered, and our ignorance of the location of most of the production centres constitutes a major obstacle. Considerable progress has nevertheless been made since the mid-1990s in understanding the sequence of production and circulation of glass thanks to the results of archaeometry, the diversification of archaeological excavations (primary production centres, secondary glassblowing workshops, wrecks), and the careful analysis of archaeological assemblages. We must continue to make the archaeological documentation easily accessible to systematic exploitation; setting side by side the images, sharp or fuzzy, that we have of the trade routes of different ancient material is also necessary to try to assess the place of glass, in all its forms (architectural material, tableware, ornaments, and containers) in the ancient economy. Objectively, glass represents only a tiny fraction of the mass of commodities traded, but the market value of certain glass vessels and of commodities that one chose or found necessary to bottle in a stable material should not be underestimated.

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Procurators' Business? Gallo-Roman Sigillata in Britain in the Second and Third Centuries AD

Michael Fulford

INTRODUCTION

Quantitative approaches to the study of Roman pottery have been developing since the late 1970s, but coverage across the Empire remains patchy.¹ There are two main strands to research: the analysis of ceramic assemblages from individual sites—for example, Berenice or Carthage²—and the study of particular types of pottery—for example, Baetican amphorae,³ through the incidence of name-stamps on their handles, or Arretine sigillata, through the incidence of name stamps on decorated and plain vessels. In the case of the latter two examples, we are dealing with wares that had very extensive distributions across the Empire and that occur on a scale where it is beyond the capacity of individual researchers to capture all the relevant data. As epigraphic information, the potters' stamps have been recorded more systematically over time, as, for example, in *CIL*, than the rest of the vessels, even when decorated. Thus the incidence of the stamp has been taken as a representative sample of the production and distribution of the ware as a whole—on the one hand, the single form of the Baetican, olive-oil-carrying Dressel 20 amphorae, and, on the other, the total production of Arretine sigillata, including all plain and decorated forms, present at any one site.⁴ In each case we have to remember that the stamp is only a sample and that it may not have been systematically employed to mark all vessels and that practice may well have changed over time. As comparatively few classes of Roman pottery were stamped, it immediately

¹ Wilson (2009). ² Riley (1979); Fulford and Peacock (1984).

³ Remesal Rodríguez (1986); Carreras Monfort and Funari (1998).

⁴ Kenrick (2000).

becomes apparent that reliance on stamps, which in any case occupy only a very small proportion of the surface area of the vessel, as a way of measuring abundance within a single site assemblage is flawed. As a more reliable indicator of abundance, it is essential to take account of all the surviving material, whether Baetican amphorae or Arretine sigillata, and consider representation by the number of sherds and their total weight in the assemblage. Over time, as more and more site assemblages are systematically quantified, we will be able to make use of these new types of dataset.

While Philip Kenrick's masterly revision of *Oxé-Comfort*⁵ has shown the way forward as far as the study of Italian sigillata and its distribution across the Roman provinces is concerned, a far greater challenge is to be found in the study of the succeeding, Gallo-Roman sigillata tradition. Here, the duration of production (some 250 years), its scale (tens of thousands of vessels from a variety of workshops in numerous locations, whose outputs ranged from the gigantic—for example, La Graufesenque—to the modest—for example, Colchester), and its distribution (extending across, principally, the western provinces of the Empire from the Atlantic to the Danubian provinces, but also around the Mediterranean littoral) pose very significant problems for analysis. As with the study of Italian sigillata, the common denominator of the potter's stamp remains, for now, the best way forward for characterizing the production of individual workshops, the distributions of their wares, and change over time, until there is a greater abundance of quantified data from individual settlements where this tableware pottery was consumed, or of parallel studies of particular types, such as the decorated wares.

It is against the background of the need for much greater clarity on the production history of the Gallo-Roman sigillata industries that a project funded first by the British Academy and now by the Arts and Humanities Research Council (AHRC), based at the University of Reading,⁶ to bring to publication a corpus of potters' stamps on sigillata, produced principally in the provinces of Gaul and Germany between the beginning of the first and the middle of the third century AD, was developed. Gallo-Roman sigillata, or samian ware, is the fine, red glossy tableware that includes both plain and mould-decorated vessels, which developed from wares produced in Italy, initially at Arezzo, in the second half of the first century BC, often referred to as Arretine. The provincial material was collected over many years from the 1960s by the late Brian Hartley, Reader in the Department of Classics at Leeds University, and his research assistant, Brenda Dickinson. With some 300,000 stamp records associated with 5,000–6,000 potters, it represents an unparalleled resource for the study of a highly organized pottery industry and its distribution. The key innovation that Hartley brought to the study of the

⁵ Kenrick (2000).

⁶ AHRC Project AH/F01046X/1: The samian pottery industries of Roman Gaul.

stamps was the recording of the stamp die, not just the name, as had been, typically, previous practice. The attention to the detail of the die provides a means for investigating the careers of individual potters and for distinguishing the production of different potters sharing the same name and working at the same place, but at different time periods, or of potters working at several locations and time periods but sharing the same name. The corpus is published in nine volumes as *Names on Terra Sigillata: An Index of Makers' Stamps & Signatures on Gallo-Roman Terra Sigillata (NOTS)* by the Institute of Classical Studies, University of London.⁷ Alongside the book publication, the data have been assimilated into an online database at the Römisch-Germanisches Zentralmuseum (RGZM) Mainz by Dr Allard Mees.⁸

Material for the corpus was drawn from publications, but to a very much larger extent from the fruits of purposive collecting programmes from museums and site collections from the western provinces, particularly Britain, the Gauls, and the Germanies. There is also material from Raetia and eastwards through Noricum along the Danube to Pannonia, as there is from Portugal, Spain, Italy, and from elsewhere around the Mediterranean, but there was no systematic data collection from these countries and regions. The frontiers of Britain and of the Rhenish and Danubian provinces provided natural limits for the systematic collecting programme, with no organized collecting in *Barbaricum*, and, as the overall distribution of findspots shows (Fig. 10.1, but see also the case of Lezoux pottery in Fig. 10.3), it is reasonable to infer representative collecting from urban and military sites in Britain, the Gauls, and the Germanys. The most intensive collecting has taken place in Britain, where there is also good coverage from a wide range of rural settlements, particularly within the 'Romanized' = urbanized areas of the south and south-east. However, it needs to be remembered that each site from which stamp data were collected will have its own history of investigation, from individual, antiquarian finds through to assemblages recovered through modern, methodical, archaeological investigation.

With its distinctive and evolving repertoire of shapes and decorative schemes, the potential of terra sigillata as a dating tool has long been recognized.⁹ In the absence of independently dated coins, sigillata has been a major source of dating evidence of archaeological sites and sequences in the north-western provinces of the Empire. Hartley recognized the potential that the detailed study of the potters' stamps and their dies might contribute to refining chronologies further.¹⁰ Such chronologies, however, by necessity, rely on associations of material with contexts that have been independently dated. In the case of the Gallo-Roman sigillatas, the chronologies of potters and

⁷ Hartley and Dickinson et al. (2008–12).

⁸ <www.rgzm.de/samian> (accessed 17 March 2017).

⁹ e.g. Oswald and Pryce (1920).

¹⁰ Hartley and Dickinson et al. (2008–12: i. 1–28).



Fig. 10.1. The area of purposive collection of the potters' stamps published in Hartley and Dickinson (2008–12)

production centres have been established in large measure by reference to the development of the frontiers in Britain and Germany as recorded by Roman historians. In addition, well-dated horizons such as destruction levels that can also be linked to historically attested events (Boudiccan destructions, destruction of Pompeii), or large, closed assemblages (such as shipwrecks, deposits of waste material at production centres, other destruction deposits) have amplified chronologies. Close examination has shown that few of these apparently well-dated horizons are necessarily thus: for example, there is debate about the development of the German *limes* in the late first and early second century AD,¹¹ and there is need for rigour in attributing first-century AD destruction horizons in the three towns of Colchester, London, and Verulamium to the hand of Boudicca in AD 60/1.¹² As Hartley's work on material from the northern British frontiers of Hadrian's Wall and the Antonine Wall shows, the close analysis of the potters' stamps on sigillata itself has also much to contribute to our understanding of frontier development.¹³

¹¹ Kortüm (1998).

¹² Millett (1987).

¹³ Hartley (1972).

Among the many benefits, therefore, that this project to publish the potters' stamps brings is a better-documented basis for considering, *inter alia*, the chronologies and distributions of individual potters and the changing, collective outputs and distributions of production centres across the western provinces. The potter's stamp also provides a common basis for quantification. Up to now quantitative-based studies of sigillata assemblages from excavations have been rare, and distributions of different production centres have been put together on a very schematic basis. Even in Britain, where quantitative approaches to the study of Roman ceramic assemblages are relatively well established, the sigillata is often treated separately from the kitchen/domestic wares, with the emphasis on the reporting of the stamps and decorated wares, and not necessarily on the entirety of the assemblage. Thus questions to establish the changing relative importance of sigillata vis-à-vis other wares at different sites cannot easily be addressed. Despite variability of stamping practice between different centres, with some forms not being stamped at all, our sample is such that, using the potter's stamp as the medium, we have for the first time a common basis for making comparative analyses of production and distribution across all the western provinces where Gallo-Roman sigillata is found.

DISTRIBUTIONS

At a general level, it is well known that the principal production centres, such as La Graufesenque in the first century AD, and Lezoux and Rheinzabern in the second and third centuries AD, have very wide distributions, and summary maps to show this have been published from the 1980s onwards.¹⁴ It is also well understood that these wares are abundant in provinces remote from the centres of production and that they are a notable feature of the pottery assemblages of military establishments in Britain and Germany. In the case of two of the largest producers, La Graufesenque in the first century AD and Lezoux in the second century AD, as well as some of the smaller workshops, it also seems to be the case that the bulk of the distribution is skewed to the north of the kilns.¹⁵ This is more apparent with Lezoux than with La Graufesenque, where the distribution also extends to the Iberian peninsula and the Mediterranean more generally, but particularly in the west Mediterranean, regions where there was no systematic collection for NOTS. Nevertheless, the Mediterranean distribution is predominantly coastal, contrasting with the deep hinterland distributions of the ware in Gaul and Germany and extending

¹⁴ E.g. King (1981: fig. 6.4); Tyers (1996: figs 97–100).

¹⁵ Tyers (1996: figs 97, 99).

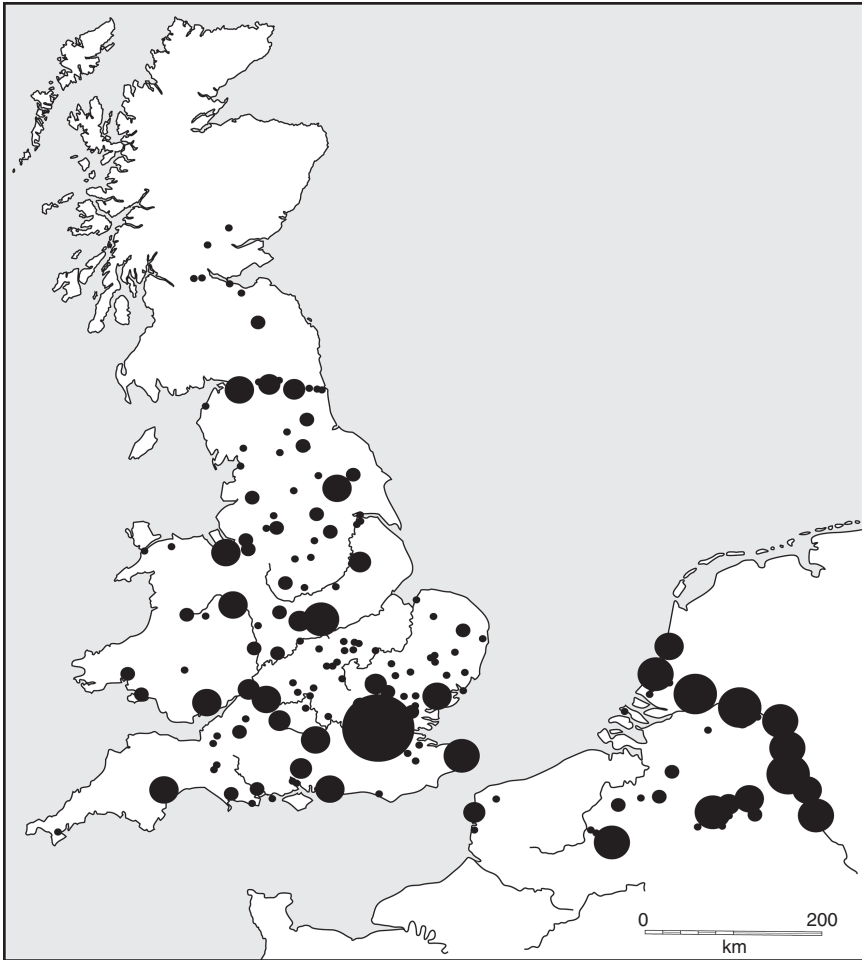


Fig. 10.2. The distribution of La Graufesenque potters' stamps (A to E) of all dates (but predominantly second half of first century AD) in Britain and the lower Rhine

across to Britain (Fig. 10.2). Rheinzabern, on the other hand, appears to have a more balanced distribution both up- and downriver of the production centre.¹⁶ In each case, the maps generalize, representing the totality of the recorded output from those production centres, none of which operated for less than about a century. In terms of the apparent irrationality (from a modern perspective) of distributions, many years ago Anthony King made the point that, in terms of the cost of transportation of the pottery, one would have predicted that

¹⁶ Tyers (1996: fig. 100).

Rheinzabern would have been a much more significant supplier of sigillata to Britain than Lezoux in the second to mid-third centuries.¹⁷ Excellent summaries, with extensive bibliographies, of our present understanding of the production and distribution of Gallo-Roman sigillata are to be found in recent syntheses.¹⁸

The purpose of this chapter is to explore some of these distributions in the light of the new, common medium of the potter's stamp where it can be linked with a production centre. Important questions include whether—and to what extent—there is evidence of differential distributions in favour of the army, or of decline in the volume of distribution with distance from the kilns, as the costs increase the further the goods are transported, and the more they are transferred between different modes of transport: road to river, river to road, river to sea, etc. On the face of the 'broad brush' distributional studies of King and Tyers, it would seem as if the pottery is as abundant in Britain as, say, it is in Gaul and Germany, and that it defies the additional costs that distance would have added and that, one would have assumed, would have reduced consumption the further the goods travelled.

This contribution focuses on the second and third centuries AD, embracing the production of Les Martres de Veyre, Lezoux, and Rheinzabern, as well as other, smaller producers of the period, such as Trier and La Madeleine. In contrast with the first century AD and a period of advancing frontiers, particularly in the case of Britain, where a high proportion of the major find sites have both a civil and a military history, the second century is a relatively stable period as far as the frontiers are concerned. This study has drawn on the data from the first three volumes of *NOTS* (A to E), representing, therefore, a sample equivalent to about one-third of the total of the entire corpus.

Lezoux

Let us take the plot of all sites where stamps of Lezoux potters of second- and third-century date are present (Fig. 10.3). The distribution extends from the Antonine frontier in the north of Britain to Pannonia, particularly along the Danube to Aquincum (but also beyond). There are very few findspots south of the production centre. There are also very few records outside the frontiers, partly a reflection of collecting policy, but also a reflection of a real, generally sparse representation. In this sense the frontiers represent a 'cliff edge' to the patterns of distribution. The density of findspots is much greater in Britain than anywhere else, and this very largely reflects more intensive collection of data, including from rural settlements, than elsewhere. If we introduce

¹⁷ King (1981: 69, fig. 6.6).

¹⁸ e.g. Bémont and Jacob (1986); Tyers (1996: 112–16).

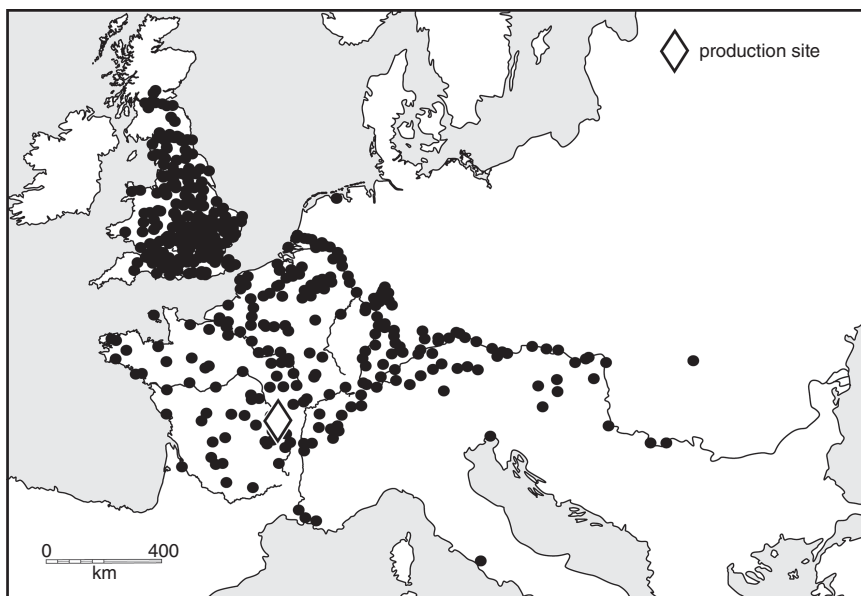


Fig. 10.3. The distribution of sites with finds of early second- to early third-century AD Lezoux potters' stamps (A to E)

Note: For the potters A to E, the total number of stamps is 71,473, the work of 1,930 potters. The maps are derived from plots of the relevant NOTS data stored on the Mainz database, and I am grateful to Dr Allard Mees, RGZM, for all his help in making them available. The dot size in each map is proportional to the number of stamps represented, and variability in sample size between find sites has been smoothed so that the dot size equals the square root of the number of stamps represented at each site + 3, the latter to compensate for sites represented by only a single stamp, which would otherwise be hard to represent and so are calculated at 1+3.

quantities into the distribution, the picture fills out to the extent that it is not easily reproducible as a line drawing, but there are no obvious distinctions to be drawn in the amounts recorded from individual sites between Britain and Upper Germany and Raetia. There *are* areas with very few recorded finds: Brittany and the Cherbourg peninsula, and the Vosges in eastern France, for example; and the pattern *is* definitely patchier in the middle Danube—for example, Pannonia—where there was less systematic collecting of stamp records, but it would be premature to emphasize this without further campaigns of collection and research. Allowing for the lesser density of recorded find sites in Gaul, which probably mask complex distribution patterns of the ware in the countryside, it would appear that distance does not influence the distribution of the product. Even in the patchier area of representation in Pannonia, the quantities at individual sites at the Danube bend are no different from those higher up the river. What is not clear is the behaviour away from the influence of the river. If we look more closely at Britain as a single area and as a sample of the larger distribution (Fig. 10.4), it is hard to see that distance

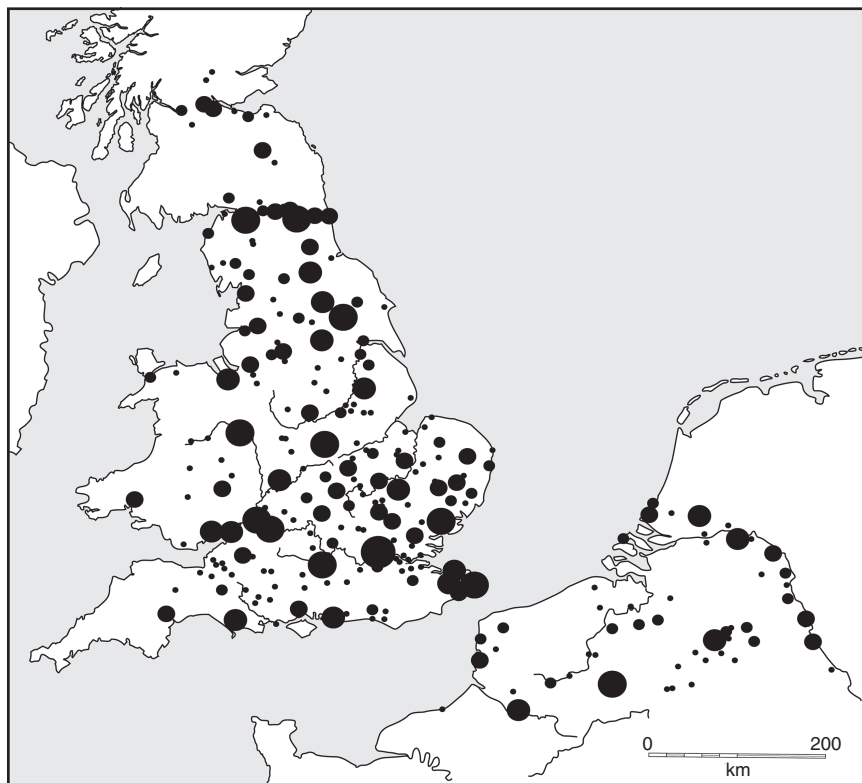


Fig. 10.4. The distribution of potters' stamps (A to E) of Lezoux in Britain, early second to early third century AD

(at least as far as the northern frontier) had any effect on the distribution at all. Of course, the majority of sites in the northern half of the distribution are military (and note the concentration of finds on the short-lived Antonine Wall), but, in the civil and urbanized south/south-east, it is not possible to discern any patterning that is not a reflection of the pattern of settlement and population. Thus areas scarce in finds, such as the south-west peninsula of Cornwall and Devon, Wales, and the Weald/East Sussex, are those lacking urban settlement and Roman material culture in general.

Rheinzabern

To compare with the Lezoux distribution, let us look at Rheinzabern, an industry that operated alongside Lezoux in the second century, but also, unlike

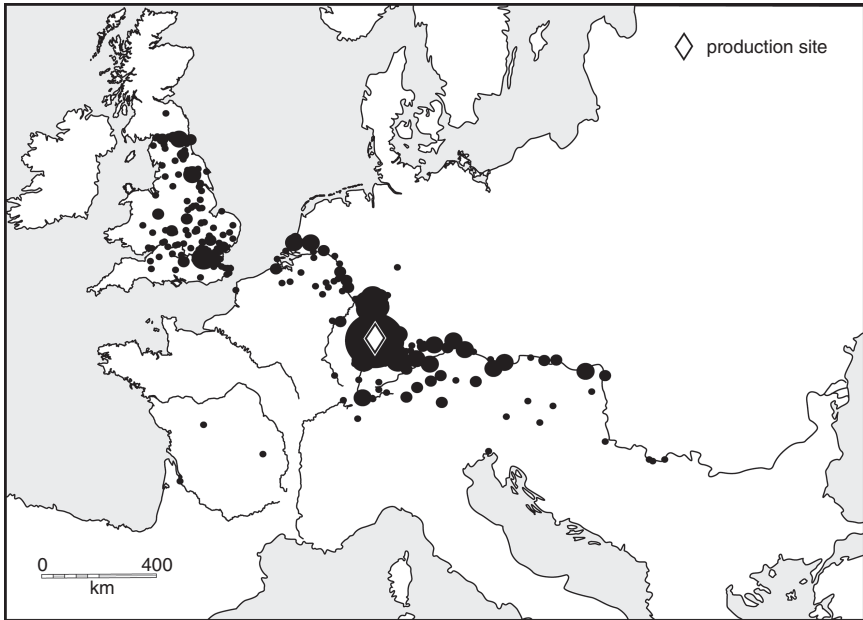


Fig. 10.5. The distribution of potters' stamps (A to E) of Rheinzabern, second to mid-third century AD

Lezoux, continued as a major supplier to around the mid-third century (Fig. 10.5). The overall picture, with quantitative indicators, reveals the concentration of findspots in Upper Germany and the *Agri Decumates*, and then riverine-focused distributions along the Upper Danube (to the Danube bend) and down the Rhine to the North Sea and across to Britain. While there is some 'off-river' distribution in the extended, southern distribution in Raetia and Noricum, there is little beyond the Rhine itself to the west in Lower Germany and Gallia Belgica, and there is no reason to suppose that the stamp rubbings made in Gaul did not correspond with the entirety of the relevant museum collections, nor that the latter were in any way biased towards the products of one centre rather than any other.

Across the North Sea, Rheinzabern sigillata is found extensively in Britain, but in nothing like the quantities of the Lezoux production (Fig. 10.6). Although the amounts are considerably less than those from Lezoux, the overall distribution is very similar, with few finds in the south-west and Wales. There is no presence on the Antonine Wall, and one might argue for a division between northern (north of the Humber and predominantly military) and southern (civil) British concentrations. There is a similar gap in the Lezoux distribution, and the 'empty' area in the southern Pennines is also one without significant urban or villa settlement. One striking point about the British distribution is

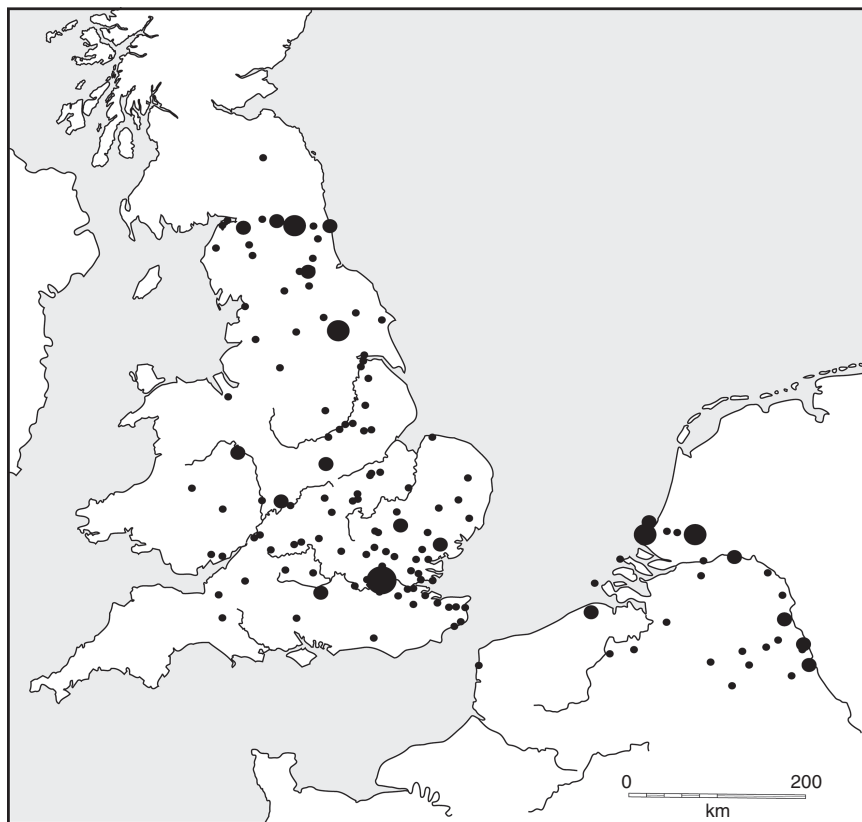


Fig. 10.6. The distribution of potters' stamps (A to E) of Rheinzabern in Britain and the lower Rhine, second to mid-third century AD

its extent inland compared with that found west of the Rhine in Lower Germany. Indeed, quantities of Rheinzabern stamps and the density of distribution in this region are less than those of the more distant Lezoux (cf. Fig. 10.4). It might be argued that the inland penetration into Britain partly reflects multiple entry points, particularly up the east coast to centres such as York and South Shields. On the other hand, there is only the slightest evidence for a distribution along the south coast or even along the coast of Gaul opposite, such that London was indeed probably the only major port of entry for southern Britain. Depending on the influence of multiple ports of entry, particularly north of the Wash, Rheinzabern ware is, nevertheless, widely distributed in Britain, with no clear evidence of decline with distance from the east/south-east coast until the limits of the urbanized areas are reached, such as at the find site of Wroxeter. While there may be issues of differential emphasis in collecting—more records from Britain than from

Lower Germany and Gallia Belgica, for example—the overall distribution of Rheinzabern is not what one might have expected unless it was carefully controlled, such that it found greater consumption in locations relatively remote from the production centre, such as in Britain, rather than closer to the source in, for example, Germania Inferior.

Trier

The distributions of Lezoux and Rheinzabern have been considered in this context in isolation, but future work needs to review the relationship between them across their shared areas of distribution. Indeed, the production of other, contemporary, but smaller producers of the ‘East Gaulish’ group also needs to be built into the analysis. The example of Trier is interesting (Fig. 10.7). Here we have the overall picture of the distribution from around the mid-second into the third century. The main distribution beyond Trier itself is the lower Rhine (and then across into Britain); there appears to be no subsidiary distribution around Trier itself and, on the Rhine, there is a sharp cut-off to the south, in Germania Superior, where Rheinzabern was located and its products concentrated. From the perspective of the lower Rhine and Britain, the pattern of consumption, though the quantities are much less, is closely

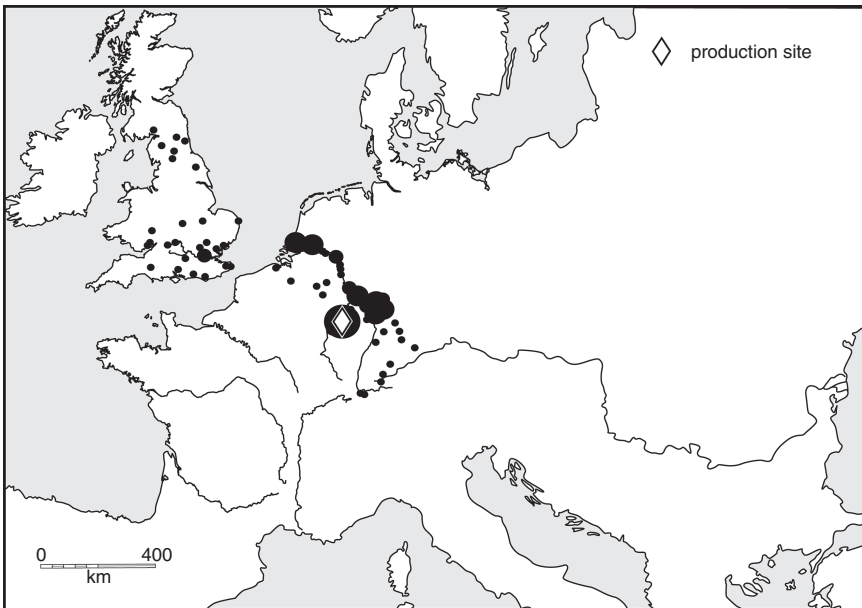


Fig. 10.7. The distribution of potters' stamps (A to E) of Trier, later second to mid-third century AD

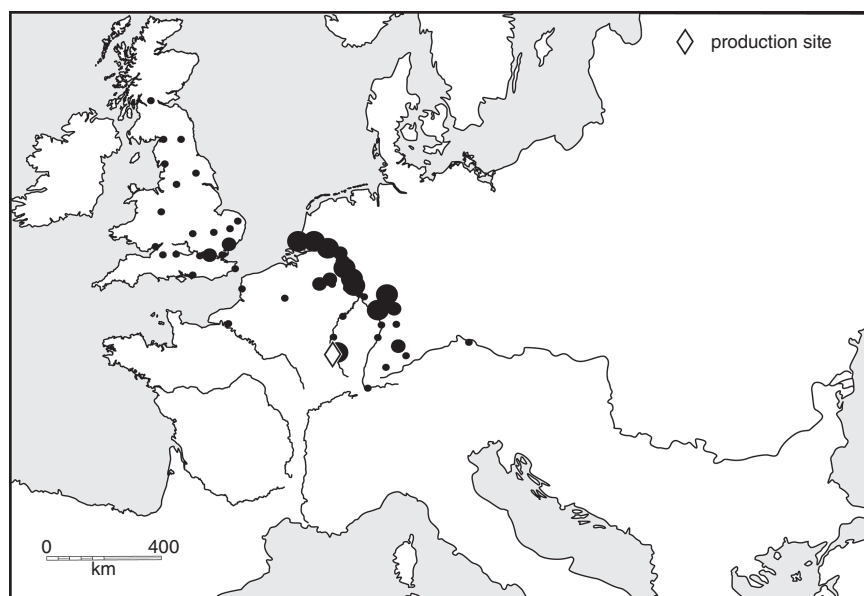


Fig. 10.8. The distribution of potters' stamps (A to E) of La Madeleine, second century AD

comparable to that of Rheinzabern. The most striking point about the distribution, and this is not a question of collecting bias (as we have relevant Lezoux (and, indeed, earlier La Graufesenque) records from the areas in question), is the lack of findspots in the general hinterland, but notably to the south of Trier. This is, of course, very reminiscent of Les Martres de Veyre and Lezoux, but also of others of the East Gaulish family of producers, such as La Madeleine (Fig. 10.8).

MECHANISMS OF SUPPLY

The distributions of these three examples of major sigillata producers in the Gallo-Roman tradition raise important questions about their underlying mechanisms of dissemination. The key question to determine is what mechanism enables the pottery to travel such distances from the production centre without any impact on the quantity distributed. By the same token, why does production from certain centres, such as Trier or Lezoux, not reach more accessible, neighbouring communities? Clearly there is an element of military supply, where garrisons might have been supplied through contracts arranged between individual units and provincial procurators, and the buying power of

the military has long been canvassed as the explanation for the extended distributions to frontiers.¹⁹ However, it is evident from the find sites that the bulk of consumption is not in the forts and fortresses of the frontiers, but in the urbanized areas of Gaul, Germany, and Britain. Both soldier and civilian appear to have benefited equally well from whatever supply arrangements prevailed. Those supply arrangements included sale in shops and *fora*, as well-known discoveries such as the pre-Boudiccan Colchester pottery shops and the Antonine Wroxeter forum assemblage demonstrate.²⁰ Indeed, we have direct evidence of price from a graffito on a decorated bowl of the Lezoux potter Cinnamus (AD 150–80) from Flavia Solva in Noricum, towards the eastern limits of the Lezoux distribution: ‘Verecunda’s bowl bought for 20 asses’, a figure representing two days’ pay for an auxiliary; one and a half for a legionary.²¹ Nevertheless, given the hundreds of kilometres distance that bowl had travelled from Lezoux to Noricum, never mind the initial costs of manufacture, this price does not seem excessive—even if it might be a second-hand price! It could, of course, be that the sustained distribution patterns might be explained by consumers simply paying more the further the commodity travelled from the production centre. But in such a scenario it is scarcely credible that, for example, soldiers transferred to Britain from Germany would have been prepared to pay more for their tableware than they had in Lower Germany. On the contrary, if price did increase with distance travelled, we might reasonably expect competition to emerge in the form of more localized production. Neither of the two attempts to make sigillata in Britain (the Aldgate–Pulborough potter and the Colchester production, the latter established by potters from Sinzig on the Rhine and identical in quality) made anything other than minimal impact on the local market.²²

A key question is how far was there state (procuratorial) control of the distribution of sigillata? Can we extend the idea of an organized and controlled supply to military consumers, which allowed equal access to sigillata tableware to soldiers whether serving on Hadrian’s Wall or on the German frontier, to one that also reached in equal measure to the civilian consumer? How might such an arrangement have worked? One aspect of Roman imperial infrastructure that has been overlooked in the consideration of the behaviour of certain manufactured goods such as sigillata is the *cursus publicus*. The road network and transport arrangements of the Empire were supported by regular series of *mansiones* and *mutationes*, altogether more numerous than military establishments. Like the forts and fortresses, these also had to be supplied with food and materials. What previously had been seen as a procuratorial organization to supply a series of military consumers, for the most part by the second

¹⁹ e.g. Fulford (1989); Whittaker (1983; 1989: 53–77).

²⁰ Atkinson (1942: 127–46); Hull (1958: 152–8; 198–202).

²¹ Noll (1972); Frere and Tomlin (1995: 7).

²² Tyers (1996: 69, 114–16).

century arrayed linearly along the frontiers, develops to assimilate the provincial, civil infrastructure of cities, towns, and relay stations in Britain, Gaul, and Germany. Like forts and fortresses, the *mansiones* and *mutationes*²³ also offered points from which goods could enter the private sphere. It is not difficult to imagine how a state-controlled commodity could thereafter enter the private market, whether by sale for money, or by exchange for goods or services, but, if the price placed on those goods was related to the initial cost paid to the manufacturer, largely or completely discounting the costs incurred in transporting the goods from the production centre, it becomes easier to envisage a process by which manufactured goods like sigillata could travel so far from source without suffering the penalty of having to recuperate the transport costs.

Interestingly, the two major deposits of Central Gaulish samian from mid-second-century Britain are associated with public buildings, the forum basilica at Wroxeter and the possible *mansio* associated with the fort at Castleford. At both locations the samian is associated with quantities of other goods, which can also be shown to have asymmetric and extended distributions: ceramic mortaria and whetstones in the east portico gutter deposit, with further quantities of samian inside the building at Wroxeter; ceramic mortaria, certain types of cooking wares, and glass at Castleford.²⁴ Like the samian, the mortaria at both locations are stamped. If we look beyond the types of mortaria represented at these two sites to consider stamped mortaria more generally, it would be true to say that, in the great majority, if not all cases, stamped mortaria have distributions that are more extended and asymmetric in relation to their respective production centres than the great majority of other types of domestic or kitchenware pottery.²⁵ In Britain, where the evidence is well documented, distributions of stamped mortaria from a range of production centres are pulled towards the northern frontier or, in the case of a continental production such as that at Aoste (Gaul), towards the British and German frontiers in the first and second centuries.²⁶ One explanation, therefore, for the stamping of samian and mortaria, like Baetican Dressel 20 amphorae, is that it acted as a form of control, like a passport, which facilitated access to state-supported supply networks. The provision of the 'passport' at the point of manufacture implies a formal relationship, such as a commission or contract, between the producer and the purchaser from the outset.

If imperial or procuratorial control underpinned the extended distributions of sigillata manufacturers, it has implications with regard to the management

²³ And perhaps also fora basilica in Britain: see Wroxeter, below.

²⁴ Fulford (2014).

²⁵ BB1 and BB2 being the notable exceptions in Britain (Allen and Fulford 1996; Tyers 1996: 182–8).

²⁶ Tyers (1996: 116–35).

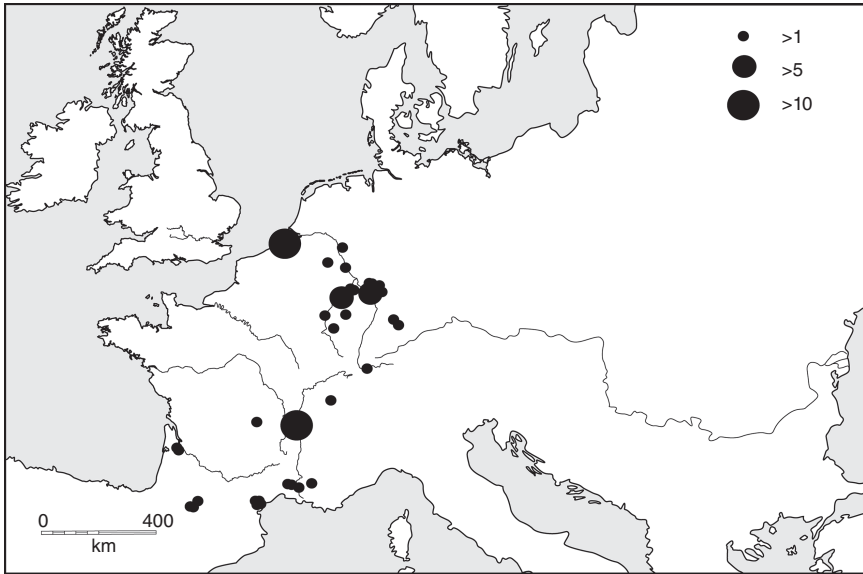


Fig. 10.9. The distribution of inscriptions referring to *negotiatores* (after Whittaker (1994: fig. 29))

and control of supply and distribution. On the one hand, it removed the incentive for entrepreneurs who did not have access to the system, which might provide them with, for example, free food and fodder at *mansiones* and *mutationes*, to trade in these goods; on the other, it also implies a network of control points as traffic moved between provinces. The first point might explain the very distinctive lack of a significant presence in the hinterlands of the production centres south of, for example, Lezoux or Trier; the second might explain the dominance of London (later, perhaps, London and York) in the British distributions. In supplying through London, the reason for the emphasis of successive sigillata distributions on the lower Rhine route, beyond the supply of settlements along the river, becomes clear, as does the concentration of epigraphic material recording *negotiatores* (including of pottery) near the mouth of the Rhine, as well as up the Rhine and down the Rhone (Fig. 10.9).²⁷ By the same token, the absence of evidence of concentrations of sigillata, greater than those from inland sites, at potential port or coastal sites along the south/south-east coasts can also be understood. London as the control point for the entry into Britain of goods, such as, in this case, sigillata, in which the procurator had an interest, reinforces the role of the Rhine (and vice versa) in the supply.

²⁷ Deae *Nehelleniae* (1971); Whittaker (1994: Fig. 29).

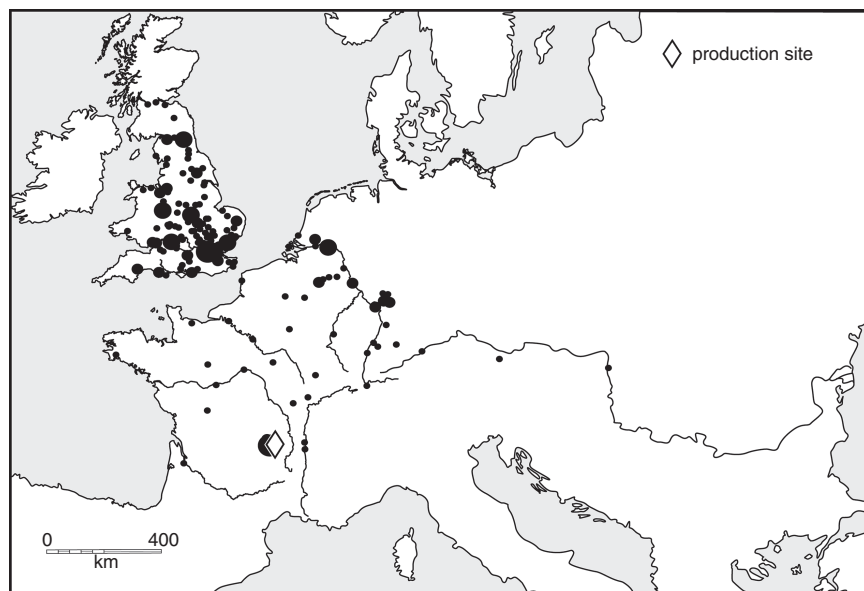


Fig. 10.10. The distribution of potters' stamps (A to E) of Les Martres de Veyre, predominantly early second century AD

Control through London of the British distribution may help explain in part one of the (seemingly) oddest distributions so far to emerge from this survey of the sample of potters' stamps so far published. Production at the Central Gaulish workshops of Les Martres de Veyre preceded that at nearby Lezoux for a short period at the beginning of the second century. *NOTS* shows an overwhelming dominance of consumption in Britain rather than Gaul (Figs 10.10–10.11). Although new research will undoubtedly increase the number of Gaulish finds, it would appear from the sample informing this contribution that there is little representation of this ware throughout Gaul. Less than 20 per cent of the sites that produced pottery from La Graufesenque or Lezoux have produced stamps of Les Martres de Veyre. On the Continent, the greatest concentration of finds is on the lower Rhine (cf. the distributions of La Madeleine, Rheinzabern, and Trier (see Figs 10.6–10.8)), while the greatest quantity of British finds of Les Martres de Veyre sigillata is from London. The majority of findspots of potters' stamps of this ware is within about 100 km of London, and the central point of the British distribution is in the centre of England, also about 100 km to the north-west of London (Fig. 10.11). It is hard not to infer from this sample that Britain was the principal destination for sigillata from Les Martres de Veyre, with only very small quantities 'leaking' out from the supply route along the lower Rhine, and that London was the principal, perhaps sole, port of entry into Britain and the control point of the

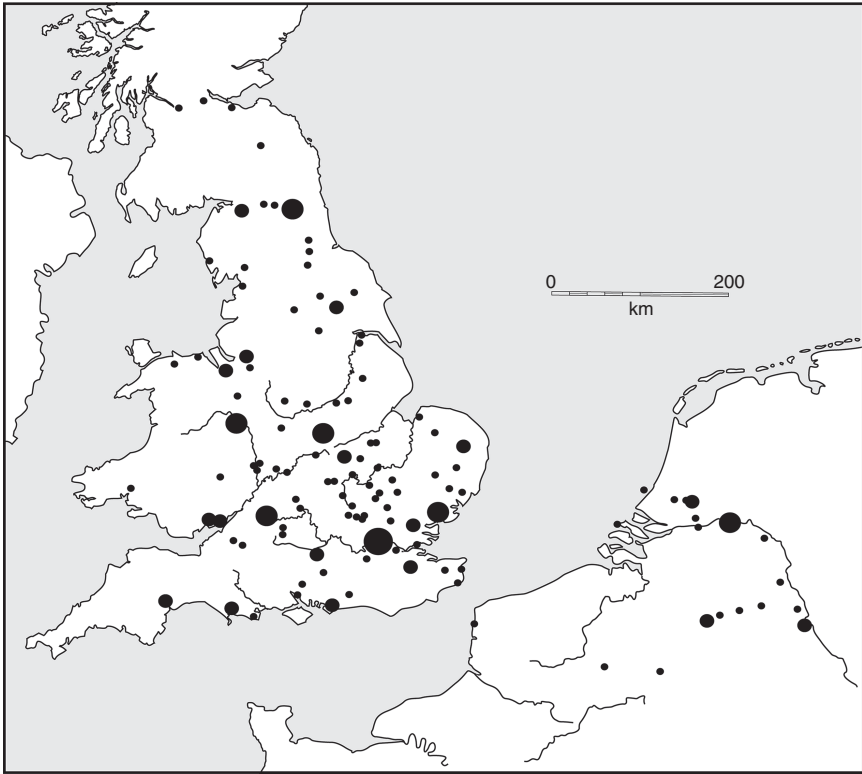


Fig. 10.11. The distribution of potters' stamps (A to E) of Les Martres de Veyre in Britain and the lower Rhine, predominantly early second century AD

trade into the province. The 'leapfrogging' character of the distribution, with so few finds in Gaul itself, recalls that of Colchester mortaria in the second half of the second century AD, where the vessels are found locally in East Anglia, and then on the northern frontier of Britain, particularly on the Antonine Wall, and also that of the cooking ware, BB2.²⁸

The route via the Rhine did not, however, account for the supply of all sigillatas to Britain. The distribution of first- and second-century AD Montans sigillata provides a contrast (Figs 10.12–10.14). The workshops were located in the upper catchment of the Garonne, and Aquitania was the principal region of consumption of these sigillatas in Gaul throughout the life of the industry. In the first century AD the distribution is largely confined to south-west Gaul, and distance from the production centre is undoubtedly a major influence on distribution, though a seaborne trade probably accounts for its presence in Brittany, Normandy, and Britain itself (see Fig. 10.12). In the second century,

²⁸ Tyers (1996: figs 111, 233).

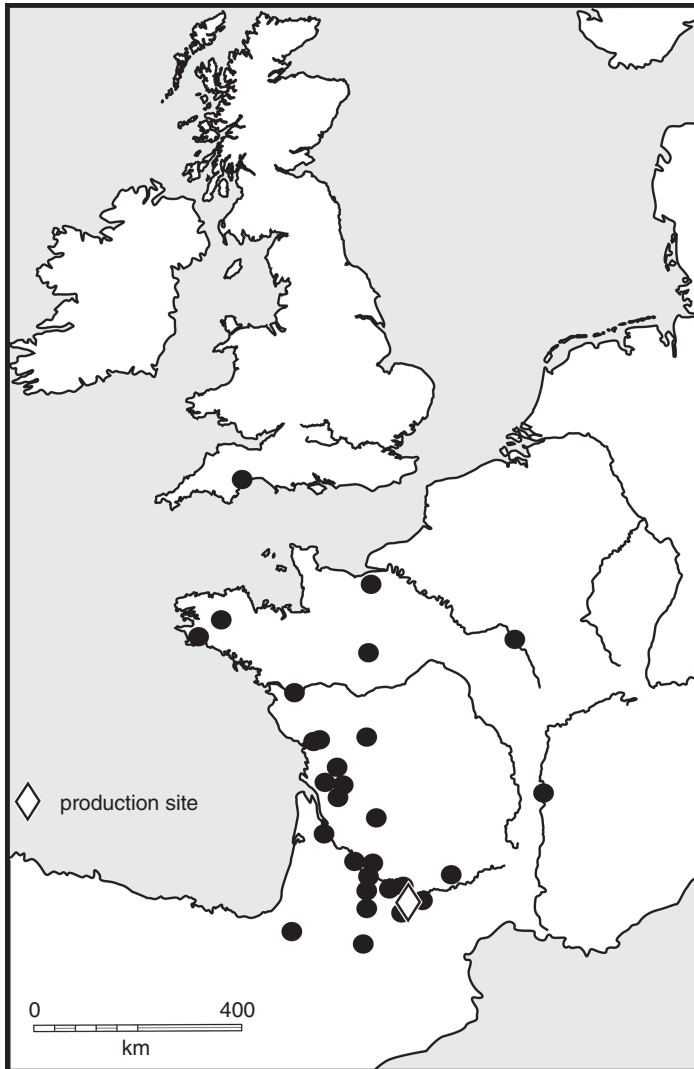


Fig. 10.12. The distribution of potters' stamps (A to E) of Montans, c. AD 10–30

however, there was a substantial distribution to Britain in addition to the supply of the Gaulish markets (Fig. 10.13). The presence of Montans ware on the Antonine Wall is to be noted, and it is possible that the supply of the newly advanced frontier in Britain required resources to be found in addition to those from the traditional sources (cf. Fig. 10.4). But where one might have expected a western emphasis in the distribution in Britain if normal commercial principles had obtained and the pottery traded to the nearer, more obvious ports such as at Exeter and around the Solent and Southampton Water, the

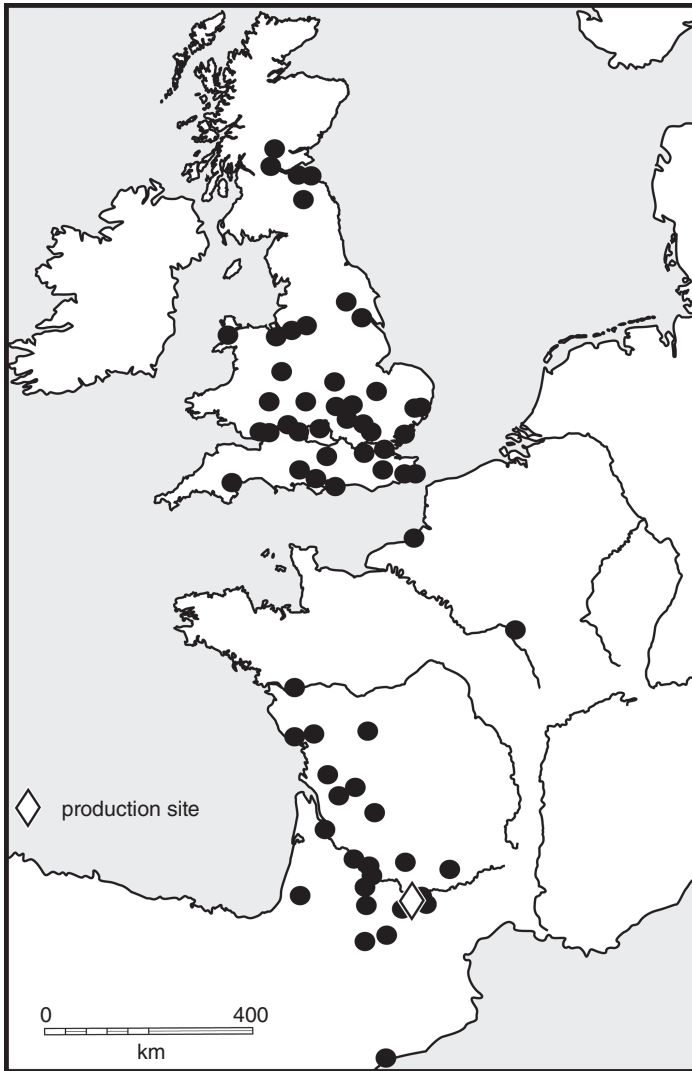


Fig. 10.13. The distribution of potters' stamps (A to E) of Montans, second century AD

focus of the distribution is once again on London and the south/south-east (Fig. 10.14). The overall distribution also recalls that of Les Martres de Veyre, in this case the ware 'leapfrogging' over Brittany and Normandy. However, unlike Les Martres de Veyre, Montans ware has not been recorded in this sample from any sites on the lower Rhine; its route to Britain did not follow that of the other wares discussed here. In comparing the distribution of Montans ware in the first century with that in the second, we see with the former a distribution that conforms to expectations of decline in volume with

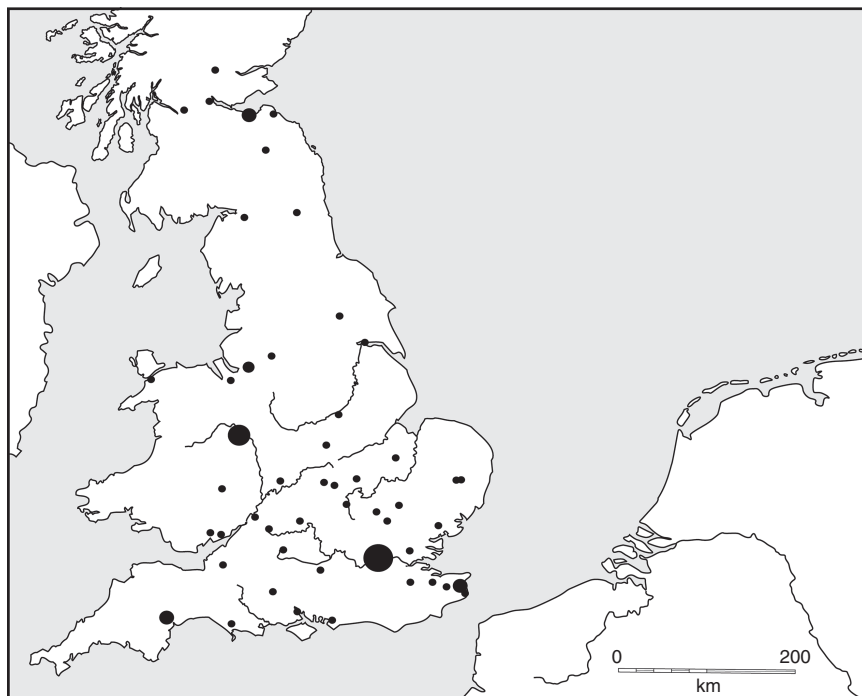


Fig. 10.14. The distribution of potters' stamps (A to E) of Montans in Britain, first and second century AD

distance from the kilns. With the later, second-century distribution, however, we see an example of a (as far as Britain is concerned) controlled situation, where a proportion of the production is purposively brought to Britain at the expense of supplying more local demand in Gaul itself. The first-century Montans example makes it clear that not all sigillata production defies the impact of the cost of transport on its distribution.

By virtue of the sheer quantity of material, the pattern of consumption of sigillata draws attention to the possible mechanisms by which its trade or supply was sustained. It has been argued that these mechanisms included procuratorial-controlled supply networks to both the military *and* the infrastructure of the *cursus publicus*, and that these account for the remarkable distributions that are unaffected by distance from the production centre. It needs to be stressed that this is not the case for all sigillata production, as we have seen with first-century Montans. If the argument for state control, which appears to have assimilated the costs of transport, is accepted for the Gallo-Roman sigillatas discussed here, it is highly likely that other goods and commodities were subject to the same subsidies and controls. An obvious parallel would be Baetican olive oil, whose Rhône–Rhine–Britain distribution

shares many characteristics with the sigillatas, but there are several other, less abundant goods and commodities that share the same pattern of distribution—for example, the supply of lava querns from the Eifel Mountains to Britain.²⁹ A subsidized transport network, as the distribution of sigillatas appears to point to, raises several questions, not least how it operated.

Documentary evidence from Egypt provides a possible insight: vessels engaged for the transport of tax grain from the Fayum to Alexandria are revealed to have had spare capacity that could be used at the skipper's discretion.³⁰ Might a similar system have operated in the western provinces, with traders of samian (and other goods) taking advantage of spare capacity on state-funded cargoes? While it might have worked for river and sea transport, even allowing for the uncertainties around how much spare capacity might have been available at any one time and at different stretches of the journey northwards, it is harder to imagine spare capacity in the context of overland baggage trains, because the load to be carried by mule or drawn by cart with a maximum load of about half a tonne would have been considerably smaller than the hold of a river or seagoing vessel. But the sheer volume of samian to be carried from the workshops, as the documented figures from the firing lists and estimates of the numbers of vessels per firing at La Graufesenque suggest, points to dedicated carriage, at least overland, of this commodity, without ruling out the possibility of smaller quantities of other types of goods being transported by the same or different merchants working in a private capacity.³¹

It is hard to imagine investment in the labour force and workshops at La Graufesenque leading to the production of tens of thousands of vessels in individual firings unless distribution to multiple destinations was assured and controlled. However, if there was a state interest in the supply of samian to the northern frontiers and to the *mutationes* and *mansiones* that lay between the production centres and the final destinations on the frontiers, another question must be why?³² Why did samian matter?

Without documentary evidence this is impossible to answer with any certainty, but a profit motive seems likely. If samian was perceived by officials as essential to the daily life of the (senior?) soldier and to civil servants, such as the administrators of the *cursus publicus*, its cost might have been deducted from salary at source. If, in determining a (senior?) soldier's deductions, the value attributed to the samian was greater than the purchase price obtained

²⁹ Morris (2010: 78–9).

³⁰ Adams, Chapter 6, this volume.

³¹ The output of a single potter working over a thirty-year period at La Graufesenque has been estimated at over 400,000 vessels, with the size of a single firing put at c.29,000 vessels (Hartley 1969: 237; Dannel 2002: tables 2, 5; Marichal 1988; Allen 2012). The postulated size of a single firing is not inconsistent with the size of the kiln (Le Grand Four) reported by Schaad (2007: 190–206).

³² Cf. Wilson and Bowman, Chapter 1, this volume, pp. 11–12.

from the owner(s) of the workshops, the state would have made a profit. Essentially, by providing samian as an essential item of kit, its transport costs absorbed by a larger, state-supported supply network, the state was also, and perhaps more importantly, avoiding paying out salary in *denarii*. Although we have some documentary evidence of ordinary soldiers' deductions from Egypt,³³ we do not have comparable material from the western provinces. But, if a Roman official was to calculate both the cost of purchase and the full cost of transporting samian to distant frontiers, taking account of each stage in the process, involving transport by road, river, and sea, it would have been impossibly expensive, a real luxury.

To conclude, this analysis of samian distribution in the northern provinces raises a series of questions that sketch a new research agenda about the consumption of Roman tablewares. If, from the point of view of the state, this good, its supply network and organization, was a luxury in terms of the costs it absorbed, how was the supply perceived by the consumer?³⁴ What now constituted luxury in this subsidized world? In relation to control, this model of administered supply raises for Britain and for other provinces the question of port networks. Were there any significant ports of trade in Britain other than London after its establishment in the mid-first century AD? Perhaps, and after the division into Inferior and Superior, York? What were the control points in other (landlocked) provinces?

NOTE

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³³ Watson (1969: 102–4).

³⁴ The large dumped deposits of unused samian recorded from, for example, the fort ditch at Cirencester (Neronian) and the London waterfront (Antonine and early third century) suggest it and its supply were taken for granted (Hartley and Dickinson 1982: 133–42; Bird 1986; Rhodes 1986).

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The Distribution of African Pottery under the Roman Empire

Evidence versus Interpretation

Michel Bonifay

Despite the reticence of some historians and archaeologists,¹ it has become more and more commonplace to use pottery as an indicator for measuring the directions, nature, and intensity of trade in classical antiquity. Even without referring back to the well-known contributions of the 1980s by scholars such as A. Carandini or G. Pucci,² and the first large-scale quantification of pottery at Ostia and Carthage, I believe that pottery evidence, if cautiously interpreted, is at least as legitimate as literary sources for giving us information about Roman trade.³ Just as it is impossible to ignore literary sources, it would be unwise to do without the pottery evidence for the reason that, as John Lund reminded us in 2006 (quoting the Danish novelist Thorkild Hansen): ‘History is old and avaricious. In one hand it holds millions of nameless destinies and with the other hand, it passes us a potsherd.’⁴

When dealing with the North African economy, the utility of pottery is even more marked, because of the lack of archaeologically excavated evidence for the production of foodstuffs in this territory. Though rural surveys are quite abundant in North Africa, very few farms and other production centres have actually been excavated.⁵ As a consequence, pottery remains the best way to

¹ Clearly expressed by Bang (2008: 2–3).

² Carandini (1983); Pucci (1983).

³ Good examples are given by Reynolds (1995; 2010).

⁴ Lund (2006). But this does not imply that the pottery data are superior to data from texts, on the pretext that pottery data are more objective and quantifiable. We can make as many interpretations using the same pottery assemblage as we can using the same text.

⁵ As far as I know, only two Roman farms have been excavated recently in Tunisia, and both are very late in date (Byzantine and even late Byzantine). The first one, Demna-Wadi Arremel, is situated in the Segermes region (Ghalia 2006), and the second one, Aïn Wassel, in the region of Dougga (De Vos 2007).

approach the African economy, as shown by A. Carandini in 1970.⁶ Because of the very widespread distribution of African pottery (amphorae, tablewares, cooking wares, coarse wares, lamps, and so on), the vitality of African trade, as evidenced by the pottery remains found all over the Mediterranean, is often considered as an indicator of the wealth of the entire African economy. Good illustrations of this method of research can be found in the African Red Slip (ARS) ware quantifications carried out by E. Fentress and P. Perkins, compared with the rhythms of African building,⁷ or in the growth of African amphora imports evidenced by C. Panella in Ostia, related to the development of olive cultivation in Byzacena.⁸

But, with these last examples, we enter straight into the heart of the problem. I do not intend to discuss all aspects of Roman African trade in connection with pottery remains; instead I would just like to point out some of the recurring problems everybody comes across when dealing with African wares, even if they are not ceramics specialists.

WHICH AFRICA?

As this question always recurs in the current publications on the African economy, I think it is still useful to attempt to define the limits of the African territory. The question is confused by the present geographical meaning of the term 'Africa' and by the spectre of the French colonization of 'Afrique du Nord' as well as by the postcolonial notion of the 'Maghreb'. It is interesting to note that P. Salama made his famous map of the roads of Roman Africa end to the east where the French protectorate of Tunisia ended in 1947, and to the west where fourth-century Africa ended (more or less at the present Algerian-Moroccan border).⁹ On the other hand, the 'Maghreb romain' as defined by P.-A. Février enclosed the entire territory of the three recently liberated French colonies of Morocco, Algeria, and Tunisia, but ended to the east where fourth-century Africa ended, at the far end of the gulf of Sirte, in Libya.¹⁰

From my point of view—this means from the potsherd point of view!—I think that we should set aside Morocco, the former Mauretania Tingitana. From the Roman period onwards, this part of the African territory has been associated more with Spain than with the rest of Africa. As far as the production of foodstuffs goes, the evidence suggests that the *salsamenta* from Tingitana were packaged in Baetican-shaped amphorae (Dressel 7–11

⁶ Carandini (1970).

⁷ Fentress and Perkins (1988).

⁸ Panella (1973).

⁹ Salama (1950).

¹⁰ Février (1989; 1990).

and Beltran II A–B) locally produced¹¹ or even produced in the Cadiz area.¹² Moreover, as already mentioned, Tingitana was administratively linked to the dioceses of Hispaniae from the fourth century onwards.

The regions included in present-day Tunisia and in the western part of Libya actually represent, according to C. Panella's phrase, 'the heart of Roman Africa'.¹³ These regions are also the best documented in terms of pottery production (Fig. 11.1). But archaeologists, happy with the abundant evidence of amphorae and ARS kilns in Tunisia and Libya, have a tendency to forget another huge part of Africa, present-day Algeria. Very little is known about the pottery of Numidia and Mauretania Caesariensis, owing to the complex political troubles that Algeria has suffered since 1992. Nevertheless, it is obvious that some (a lot of) African pottery distributed around the Mediterranean, especially amphorae, cannot be recognized as products of Tunisia and Libya; they must come from elsewhere, and we cannot exclude the possibility that they may have come from Algeria.¹⁴

On the other hand, things are becoming more and more precise in Tunisia, where it is possible in most cases to supersede the traditional classification of ARS production (A, C, D, A/D, C/E, E, and so on)¹⁵ and to specify the workshops themselves: El Mahrine,¹⁶ Oudhna,¹⁷ Sidi Khalifa,¹⁸ Sidi Marzouk Tounsi,¹⁹ and so on.²⁰

The same opportunities are offered by amphora production. It is now possible to distinguish between very distant workshops even if the typology is identical, using not only stamps²¹ but also petrography.²² Two cities seem to be particularly productive, Sullectum and Nabeul: more than twenty-five workshops have been identified in Sullectum,²³ and about fifteen in Nabeul.²⁴ For both these cities, production is huge, and the products widely distributed

¹¹ Cerri (2007); see also Papi, Chapter 14, this volume.

¹² Bernal Casasola (2006); *contra*: Pons (2007) and Papi, Chapter 14, this volume.

¹³ Panella (1993: 640).

¹⁴ Nevertheless, the evidence of such production is very scarce. The production of Dressel 30 amphorae at Tubusuctu (Tiklat) and Saldæ (Bougie) (Laporte 1976–8) is secure. The Algerian origin of type Keay 1B, even if different from the origin of the previous type, is probable (Capelli and Bonifay 2007: 555). Lastly, the hypothesis that the so-called Stazione 48 del Piazzale delle Corporazione type (with the stamp M—palm tree—C) was produced at Caesarea Mauretaniae (Cherchel) (Ben Abed, Bonifay, and Griesheimer 1999; for some doubts about this interpretation, see Bonifay 2004: 18–19) has to be abandoned for petrographic reasons.

¹⁵ For this classification, see Carandini et al. (1981). ¹⁶ Mackensen (1993).

¹⁷ Barraud et al. (1998); Dridi (2005). ¹⁸ Ben Moussa (2007).

¹⁹ Peacock, Bejaoui, and Ben Lazreg (1990).

²⁰ This progress has been made possible through meticulous archaeometrical analyses: Mackensen and Schneider (2002; 2006). See also Bonifay, Capelli, and Brun (2012).

²¹ As is well known, a series of African amphorae stamps specify the name of the city, e.g. Neapolis/Nabeul, Hadrumetum, Leptiminus, Sullectum (Zevi and Tchernia 1969; Manacorda 1977; most recently, Stone 2009).

²² Capelli and Bonifay (2007; 2014).

²³ Nacef (2015). ²⁴ Mrabet and Ben Moussa (2007); Bonifay et al. (2010).

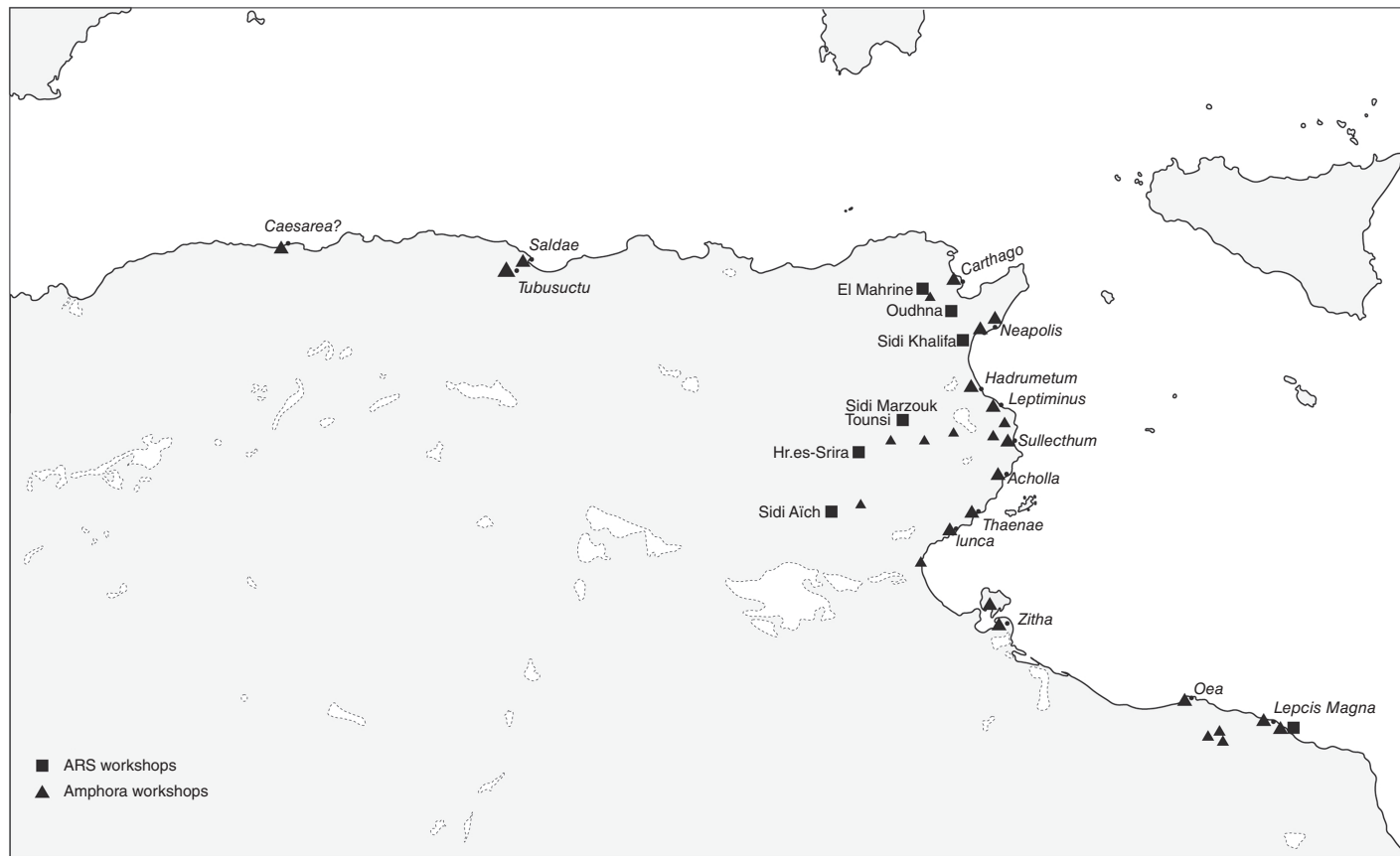


Fig. 11.1. Map of the main African pottery workshops (after Bonifay and Tchernia 2012)

throughout the Mediterranean. But we must question whether a Sullethum or a Nabeul amphora found in one location in the Mediterranean is always an indication of the importation of a product originating in one or both of these cities, or whether, on the contrary, we have a situation, on a smaller scale, similar to that of the Cadiz amphorae that were filled with salted fish from Morocco. The evidence of the supply of empty containers to agricultural or fish production centres is still very poor, though it seems mainly to be linked with salted fish production, on Cap Bon (late Roman salteries of the region between Korba and Kelibia, where many Keay 35B amphorae originating in the Nabeul workshops were found)²⁵ and perhaps some islands in the straits of Sicily (Sullethum amphorae); it has also been suggested that the Jerba workshops could have supplied some cities in the Tunisian area of Tripolitana with containers.

So, in Tunisia, and to a lesser extent in Libya, things are becoming clearer, though such precise specification could also be dangerous if used inflexibly.²⁶ But perhaps Morocco is not really Africa,²⁷ and we are still missing a huge amount of information—from Algeria.

WHAT WAS INSIDE AFRICAN AMPHORAE?

For some time it has been evident that African amphorae were mainly carrying olive oil.²⁸ Nevertheless, more and more exceptions have come to light, and a dispute has been growing since the end of the 1970s.²⁹ More recently, African amphorae have been less and less considered as having carried olive oil. One of the most debated questions was the presence or absence of an internal pitch lining. Pitch was said to be incompatible with oil, so all the pitched African amphorae (and there are a lot) were considered not to have transported oil. But now, even if I contributed considerably to the dispute over olive oil being the main content of African amphorae,³⁰ I fear that scholarship went too far in this direction. Two points need to be stressed.

First, chemical analyses have recently provided a lot of new and surprising results. For example, the samples of African amphorae analysed by N. Garnier demonstrated that most of them had chemical traces of olive oil as well as

²⁵ Bonifay et al. (2002–3: 155).

²⁶ For the moment, it is difficult to identify the amphora types that could have distributed the olive oil produced in the Medjerda valley (Thugga). Cf. De Vos (2007: 48–9).

²⁷ Although see Papi, Chapter 14, this volume.

²⁸ See in particular Carandini (1970); Panella (1973); Manacorda (1977); Keay (1984); Mattingly (1988).

²⁹ Lequément (1975, 1976, 1980).

³⁰ Bonifay (2007a).

chemical traces of pitch.³¹ In addition, ten African amphorae from a late-fifth-century warehouse in Classe, the port of Ravenna, were recently analysed by Alessandra Pecci and showed traces of castor oil, and had a pitch lining!³² Henceforth, we must acknowledge that pitch is fully compatible with oil: it is possible that more or less all amphorae were pitched, even those for transporting olive oil.³³ However, with a few exceptions,³⁴ no traces of pitch are visible inside the amphorae that probably contained oil, perhaps because the slow decomposition of the pitch into the oil was absorbed into the pores of the pottery. In conclusion, even if the chemists can tell us that oil amphorae were initially pitched, the clear visual observation of significant traces of pitch inside African amphorae remains a strong argument for contents other than oil.

Second, we cannot exclude in some cases the possibility of reuse of the amphorae, and this eventuality considerably weakens the conclusions we have drawn from the typology of amphorae in connection with their contents. In other words, in Africa, does one amphora type always correspond to one (and only one) content? I now believe the answer could vary according to the location and the chronology. For example, it is possible that the reuse of amphorae did not have the same frequency in Africa as in northern Italy, nor on the coastline of Africa (for example, Puppit or Nabeul) and its internal zones (for example, Dougga). In the same way, the reuse of amphorae probably did not have the same frequency during the second to third century as during the fifth to sixth century (as evidenced through the difference between the Monte Testaccio and Classe warehouses?). Nevertheless, I maintain that the presence and the absence of a clearly visible pitch lining are significant, at least for primary cargoes and during the early and mid-Roman periods, otherwise it would not make sense why some African types regularly present traces of pitch (Africana II) and others not (Africana I) (Fig. 11.2). Furthermore, the fact that the latter were present in Monte Testaccio between the mid-second and mid-third century, associated with other supposed oil containers such as the African Tripolitana I and III and Spanish Dressel 20, prove that they probably contained olive oil.

So, the point is not to deny the possibility that African amphorae carried olive oil, but to canvass the idea that the contents of these amphorae were probably more diverse than previously assumed.

As an alternative content, it can be suggested that some African amphorae carried *salsamenta* and *garum*. And, in fact, there is no doubt that they did: fish remains were present in several Africana II amphorae (Fig. 11.2) found in

³¹ Garnier (2007); Garnier, Silvino, and Bernal Casasola (2011).

³² Pecci et al. (2010).

³³ Romanus et al. (2009); Pecci and Cau Ontiveros (2010); Garnier, Silvino, and Bernal Casasola (2011).

³⁴ Garnier, Silvino, and Bernal Casasola (2011: 411).

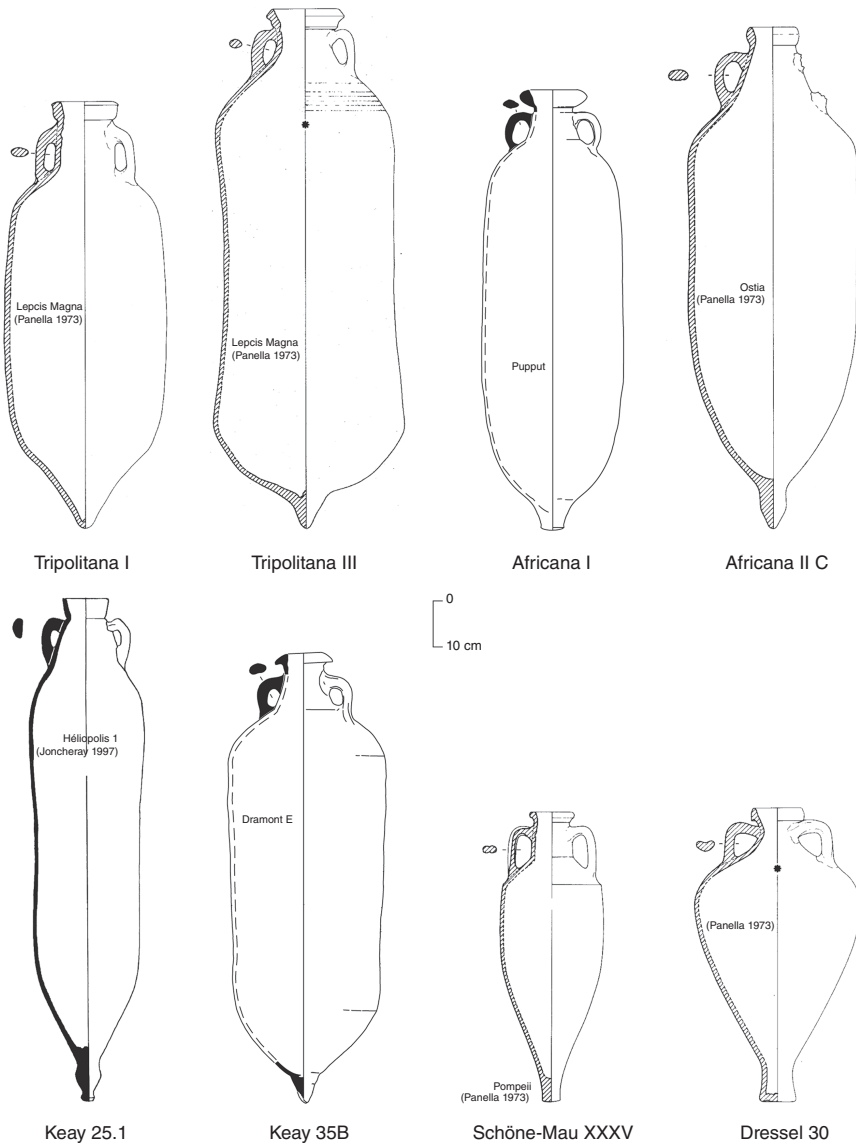


Fig. 11.2. African amphora types mentioned in the text

a series of third-century shipwrecks in the western Mediterranean (for example, Cabrera III in Majorca).³⁵ Moreover, we are now well informed about *salsamenta* production in Africa Proconsularis, since the survey of the Tunisian

³⁵ Bost et al. (1992: 143). In Majorca also, see the Cabrera I wreck (Bost et al. 1992: 13–14) and the Cap Blanc wreck (Parker 1992: no. 176).

coastline published by H. Slim and P. Troussel³⁶—production that was significant in some cities, like Nabeul, where Roman fish salteries took up a large area of the town from the first to the third century.³⁷ So, as far as the mid-Roman period is concerned, it seems that the distinction between two types of African amphorae, produced in the same workshops as shown by the similarity of the stamps, did correspond to two different contents, as initially assumed by the fathers of African amphorae studies, F. Zevi and A. Tchernia.³⁸

But the problem becomes more complex when we move to the third main product commonly packaged in amphorae during antiquity, and perhaps the most important one: wine. Wine production has been always underestimated in Africa because of a propensity to associate all the remains of presses in Africa with olive-oil production. However, the same type of pressing equipment could be used for oil and wine, as J.-P. Brun demonstrated,³⁹ and we need more excavations in order to decide between oil and wine. Another difficulty is that cellars with rows of *dolia*, one of the best markers of wine production in most regions of the Empire, did not exist in Africa Proconsularis, where amphorae were used instead. Nevertheless, we have at our disposal numerous literary references to wine production in Africa from the first to the fifth century and also some epigraphic evidence.⁴⁰ But it has often been assumed that this wine production was mainly consumed locally and that the wine was packaged in skins.⁴¹ In fact, skins and even barrels, as recently shown by Marlière and Torres Costa,⁴² were particularly well adapted in Africa to transport by road of both wine and oil (because oil had to be transported to the port cities, where it was bottled before being exported overseas, as shown by Peña⁴³). But some amphorae also demonstrate the distribution of African wine throughout the Mediterranean (Fig. 11.2). It seems obvious that the Tripolitanian type Schöne-Mau XXXV was imitating the Italian wine amphora Dressel 2/4 during the first and second centuries, and that the Mauretanian and Tunisian type Dressel 30 was imitating Gaulish wine amphorae during the third century, which points to the overseas commercialization of African wine. But could some later types have carried wine as well? The type Keay 25 was probably the most widely distributed amphora around the Mediterranean during the fourth century. It was always pitched and did not usually carry olive oil, as demonstrated by the fifteen samples recently analysed by N. Garnier;⁴⁴ moreover, a series of new analyses showed traces of

³⁶ Slim et al. (2004). ³⁷ Slim et al. (2007).

³⁸ Zevi and Tchernia (1969). ³⁹ Brun (2003).

⁴⁰ All quoted in Lequément (1980) and Brun (2003). See in particular: Strabo (XVII. 3, 4); Columella (*Rust.* III. 12, 5 and 15, 4–5; V. 5, 4; *De Arboribus*, 4, 1, and 4–5); Plinio (*NH* XIV. 120); and Augustine (*Ep.* 22, 29; *De bapt.* 20, 25; *Ep.* 93, 49).

⁴¹ Martin-Kilcher (1998: 515). ⁴² Marlière and Torres Costa (2007).

⁴³ Peña (1998). ⁴⁴ Garnier (2007).

tartaric acid, a marker of wine, inside several examples of Keay 25 subtype 1.⁴⁵ As this type appears at the end of the third century or the beginning of the fourth century, I wonder whether it could not have been devoted to the transport of poor quality wine, linked to the *canon vinarius* instituted at the same date?⁴⁶ Boudewijn Sirks does not exclude the possibility that Africa contributed to the *canon vinarius*,⁴⁷ while Domenico Vera thinks that only Italy was subjected to this fiscal measure.⁴⁸ From this point of view, it can be said that the contents of the fourth-century Keay 25 amphorae is one of the key problems for studies of Roman African trade.

In conclusion, when dealing with the distribution of African amphorae, we must keep in mind that the contents are not always the same in the same chronological period (Africana I and II) according to the form, but also that the main products exported overseas may have changed over time—for example, oil dominated between the mid-second and mid-third centuries, possibly *salsamenta* during the third century (mainly the second half), and perhaps wine (?) during fourth century.

WHAT WAS ARS TRAVELLING WITH?

As it is commonly assumed that the tablewares did not travel for their own value, how can we explain the outstanding distribution of ARS, ‘the most widely distributed pottery of the Mediterranean in the whole of classical Antiquity?’ For A. Carandini, ARS was ‘no more than a simple accompanying product’ of African oil.⁴⁹ Other scholars also considered grain, at least for explaining the beginning of the exportation of ARS before the second-century ‘olive boom’,⁵⁰ or to account for the huge amount of ARS in the eastern Mediterranean compared to the scarcity of African amphorae.⁵¹

Nowadays, what seemed to be a chronological or geographical exception—ARS without amphorae at the end of the first century and in the eastern Mediterranean—may be considered as a rule. Most scholars assume that ARS did not normally travel with African amphorae. The traditional diptych between amphorae and tablewares,⁵² built according to the distribution pattern of Campanian Black Gloss wares, does not work with ARS, as the following observations will prove. First, the examples of the dissociation between African

⁴⁵ Formenti and Joncheray (1995); Woodworth et al. (2015). On the other hand, samples of Keay 25 subtype 3 revealed traces not of tartaric acid, but of possible animal fat, perhaps evidence for the transport of fish products.

⁴⁶ According to Vera (2005), the *canon vinarius* was instituted not under the reign of Aurelian but later, during the Tetrarchic period.

⁴⁷ Sirks (1991: 392, and n. 24).

⁴⁸ Vera (2005: 249).

⁴⁹ Carandini (1983).

⁵⁰ Mattingly (1988).

⁵¹ Panella (1993).

⁵² Morel (1983).

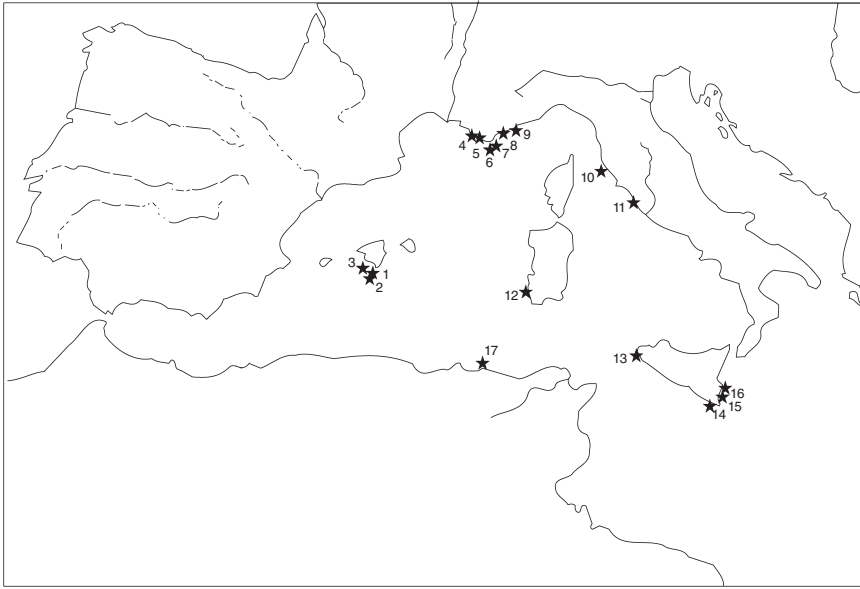


Fig. 11.3. Map of the shipwrecks mentioned in the text

Note: 1: Cabrera III; 2: Cabrera I; 3: Cap Blanc; 4: Pointe de la Luque B; 5: Port-Miou; 6: Héliopolis I; 7: La Palud; 8: Pampelonne; 9: Dramont E; 10: Giglio Porto; 11: Trincere; 12: Fontanamare A; 13: Marausa; 14: Femmina Morta; 15: Ognina A; 16: Plemmirio B; 17: Cap de Garde.

amphorae and African tablewares have become more and more numerous: tablewares are more abundant than amphorae in the eastern Mediterranean, but also in Portugal⁵³ and in Egypt, while amphorae are more numerous than tablewares along the Germanic *limes*. Secondly, tablewares are rarely associated with amphorae cargoes (Fig. 11.3). For the mid- to late Roman period, only two secure ARS cargoes are known, in the Femmina Morta wreck (Sicily)⁵⁴ and in the Fontanamare A wreck (Sardinia),⁵⁵ both dating back to the beginning of the fourth century, but in these cases we must point out that both the amphorae and the ARS cargoes are heterogeneous (African and Spanish amphorae; Northern and Central Tunisian ARS). On the other hand, the two best-known homogeneous ARS cargoes date to the mid-fifth century (Dramont E and Port-Miou, Provence) and perhaps already are post-Roman cargoes.⁵⁶ Thirdly, coming back to A. Carandini's hypothesis about olive oil as a vehicle for ARS distribution, we must consider that the main ARS workshops were not located in the main areas of olive-oil production. This fact is particularly evident for the fourth-century ARS D workshop of the lower Medjerda valley, a region

⁵³ Reynolds (1995). ⁵⁴ Parker (1976–7).

⁵⁵ Dell'Amico, Facenna, and Pallares (2001–2).

⁵⁶ Santamaria (1995); Deneauve (1972).

more adapted to the production of grain. C. Panella has already pointed out the chronological coincidence between the founding of Constantinople and Africa becoming the principal grain supplier of Rome, which saw the development of the new ARS D workshops (El Mahrine and its neighbours), while Egypt from now on supplied the new metropolis.⁵⁷

So, the trend nowadays is to consider that grain was the main product that ARS was travelling with. And, if the end of the widespread exportation of African oil did not mark the end of ARS, as proposed by A. Carandini, to some extent the end of the widespread exportation of African grain perhaps did. The drop in ARS exports from the second quarter of the fifth century onwards is not, as J. W. Hayes pointed out,⁵⁸ a theoretical point of view but is proven more and more with the publication of new eastern Mediterranean and even western Mediterranean contexts.⁵⁹ Even if the drop is less visible in the west than in the east,⁶⁰ things are changing; in particular, the sources of ARS supply are not the same. The Medjerda valley workshops seem to become less dynamic, and are replaced on the Mediterranean markets by the gulf of Northern Hammamet workshops (Sidi Khalifa) and by the revival of the Central Tunisian ones (Sidi Marzouk Tounsi: category C5). Lastly, it now seems obvious that this 'major shift in trading patterns'⁶¹ occurred from as early as the beginning of the fifth century, well before the arrival of the Vandals in Africa.

Also, the revival of ARS exports from the sixth century onwards cannot be explained simply by the Byzantine reconquest, as has been previously assumed by some scholars, because this phenomenon seems to start in the first decades of the sixth century.⁶² Moreover, the resumption of the grain supply could explain the revival of ARS export in the eastern Mediterranean, but not in the western Mediterranean, other than in some areas of Italy and south-eastern Spain under Byzantine rule. But the tendency to link ARS supply in the western Mediterranean with the geography of the Byzantine territories⁶³ does not always work, as shown in Italy by the example of Sant'Antonino di Pertini, which was still supplied with ARS well after the Lombard conquest of 646, and in Spain by the example of Cartagena, where the chronology of the last occupation levels may postdate the sacking of the city by the Visigoths in AD 625.⁶⁴

⁵⁷ Panella (1993). ⁵⁸ Hayes (1972: 423).

⁵⁹ In the eastern Mediterranean, now see Bes (2015); in the western Mediterranean, see Fentress and Perkins (1988), Fentress et al. (2004).

⁶⁰ I am not sure that the minor changes I recently proposed for the dating of some ARS forms can provide such a dramatic change in the distribution curves of ARS in the eastern Mediterranean, as evidenced in Bes and Poblome (2009: fig. 3).

⁶¹ Hayes (1980: 517).

⁶² Paralleled by the growth of eastern Mediterranean imports (amphorae) in Carthage at the same time, perhaps a reflection of the closer relations between the Vandal state and Constantinople in the early sixth century: Fulford (1983: 11).

⁶³ e.g. Zanini (1998) for Italy.

⁶⁴ *contra*: Reynolds (2010: 121, and n. 442).

In conclusion, when dealing with ARS distribution, we must keep in mind that this product does not have the same significance before and after the mid-fifth century, and that the primary cargo this tableware was travelling with may have changed over time.

WHAT MECHANISMS ALLOWED AFRICAN POTTERY TO REACH ITS DESTINATION?

The fact that the African pottery had such a large distribution does not imply that this distribution results from the same commercial mechanisms everywhere, in both the Roman and the post-Roman world. Asked in 2008 to reflect on this question in the framework of the project 'Port Networks in the Roman Mediterranean', directed by S. J. Keay, both A. Tchernia and I proposed distinguishing at least four different patterns of distribution (Fig. 11.4).⁶⁵

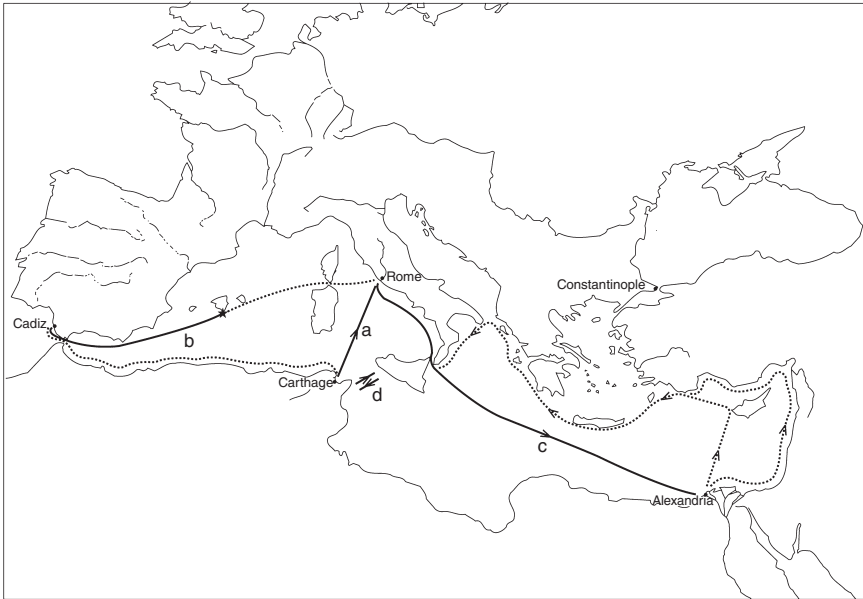


Fig. 11.4. Patterns of African pottery distribution (after Bonifay and Tchernia 2012)

⁶⁵ Bonifay and Tchernia (2012).

(a) Direct Routes to Rome or Other Main Ports

This type of distribution is the first one that comes to mind when we think about the distribution of African wares. Several shipwrecks with a homogeneous or nearly homogeneous cargo illustrate this type of direct journey (see Fig. 11.3).⁶⁶ In this case, it is perhaps surprising to find cargoes originating, not from Carthage, but from other cities mainly situated on the eastern Tunisian coast. Typology and archaeometry tell us that the shipwrecks Ognina A⁶⁷ and Plemmirio B,⁶⁸ sunk off Sicily between the end of the second century and the beginning of the third century, and Héliopolis I,⁶⁹ sunk off the Provençal coast at the beginning of the fourth century, could have come from Sullecthum. Originating from Nabeul are the very similar wrecks of Pampelonne in Provence⁷⁰ and Marausa in Sicily,⁷¹ both of which date back to the fourth century, and probably also the post-Roman wrecks of Dramont E⁷² and La Palud,⁷³ on the Provence coastline, of the mid-fifth and mid-sixth centuries. From Leptiminus is perhaps the wreck of Giglio Porto⁷⁴ in the Toscan archipelago, of third-century date. In all cases, the ships transported diverse foodstuffs: oil, *salsamenta*, and pickled olives, in one case associated with a tableware cargo (Dramont E). It is possible that the African merchandise was gathered in an African warehouse before leaving for Rome or another main port. This is probably the case for the Trincere wreck,⁷⁵ sunk off Tarquinia in the first half of the third century, with a mixed cargo of Sullecthum amphorae and Carthaginian cooking wares; this is also the case for Pointe de la Luque B,⁷⁶ sunk at Marseilles in the mid-fourth century, which included both Nabeul amphorae and possibly Algerian ones, together with a complementary cargo of Cherchel or Tipasa lamps.

(b) Indirect Routes to Rome or Other Main Ports

Even more heterogeneous, a series of mid- to late third-century shipwrecks contained a mixed cargo of both Spanish and African amphorae. Spanish amphorae were always more numerous than African ones, and the loading of the goods seems to have been performed at the same time in the same port. A model for this type of heterogeneous cargo is Cabrera III (Majorca, c. AD 267), which contained Baetican oil and *salsamenta* associated with African

⁶⁶ Bonifay (2007b).

⁶⁷ Kapitän (1972).

⁶⁸ Gibbins (2001).

⁶⁹ Joncheray (1997).

⁷⁰ Lequément (1976).

⁷¹ Tusa, Ampola, and Lentini (2004).

⁷² Santamaria (1995).

⁷³ Long and Volpe (1998).

⁷⁴ Celuzza and Rendini (1991).

⁷⁵ Pontacolone and Incitti (1991).

⁷⁶ Dovis-Vicente (2001).

salsamenta amphorae, and was probably loaded in Cadiz (see Fig. 11.3).⁷⁷ If we assume that the African amphorae were initially transported to Spain and then redirected towards Rome (or elsewhere in the Mediterranean), this kind of indirect journey seems to have ensured the distribution of a substantial amount of African *salsamenta* during the mid- to late third century and the beginning of the fourth century, as shown by a dozen or so wrecks scattered in Spain, the south of France, Italy, and Croatia.

(c) Return Cargoes from Rome

Until now, we have dealt only with the western Mediterranean. But how did ARS (and to a much lesser extent African amphorae) manage to reach the eastern Mediterranean? E. Fentress highlighted the possible role of Rome 'as an entrepôt between Africa and Sicily', suggesting that some ports in Sicily could have been supplied with ARS by ships coming from Rome and going back to Africa.⁷⁸ More recently, Philip Bes suggested that Alexandria could have acted as a centre of redistribution of ARS, collected from the *annona* ships returning from Rome.⁷⁹ A. Tchernia and I proposed an extension of this pattern, considering that from the month of June onwards, because of the direction of the wind, it was no longer possible for the *annona* ships to follow a direct route to Rome.⁸⁰ They had to sail eastwards up to Lycia and then turn westwards along the southern coast of the Peloponnese or Crete towards the straits of Messina. Such a journey could explain the widespread distribution of ARS in Lycia, southern Peloponnese, and Crete.⁸¹ According to this hypothesis, an ARS plate found in Crete could have moved from Tunisia to Rome, and then from Rome to Alexandria, and finally from Alexandria to Crete. Nevertheless, this hypothesis could be weakened by the fact that ARS was mainly distributed to the eastern Mediterranean after the collapse of the Egyptian grain supply to Rome c. AD 330.

(d) Cabotage (Local or for Redistribution)

Another mechanism well highlighted by E. Fentress in Sicily is cabotage.⁸² It is obvious that cabotage could have played an important role in the redistribution of ARS, generally speaking. But in the case of Sicily, given the proximity of Sicily to Africa, it probably played a role in primary distribution. The Italian–French project investigating the distribution of African pottery in Sicily fully

⁷⁷ Bost et al. (1992).

⁸⁰ Arnaud (2005: 27).

⁷⁸ Fentress et al. (2004: 157).

⁸¹ Bes (2015).

⁷⁹ Bes (2015: 135).

⁸² Fentress et al. (2004: 157).

confirms Fentress's hypothesis.⁸³ The facies of the African amphorae, tablewares, cooking and coarse wares, and so on in the western part of Sicily (the region of Marsala) are identical to the facies of the Cap Bon region (Nabeul) pottery. In this case, we might suggest that the ARS was not part of the seaborne trade of expensive foodstuffs but was perhaps commercialized on a small scale for its own value.

So, the presence of an ARS ware or amphora sherd in one place can be explained by several different mechanisms, variable over time, and we must take care not to simplify too much the processes of the distribution of African pottery.

ATTEMPTS AT INTERPRETATION

The four previous sections have demonstrated the geographical origin of African wares, the amphorae content, the question of the main foodstuffs accompanied by ARS, and the different mechanisms of African ware transportation, and highlight the difficulties we have to deal with when studying the distribution of African pottery and the questions that have still not been resolved.

But, pointing out these difficulties must not be 'simply a way of giving up on writing history',⁸⁴ and we still need to put forward new models in order to try, again and again, better to explain the distribution of the African pottery (amphorae and ARS). In the attempt to form new interpretations, I have chosen three parallel and complementary keys to further our understanding, which are D. Mattingly's perception of plural Roman economies,⁸⁵ D. Vera's highlighting of the importance of demand in the Roman economy,⁸⁶ and the description of the Roman 'agrarian markets' proposed by P. F. Bang.⁸⁷

(a) The 'Imperial Economy'

What D. Mattingly calls the 'imperial economy' could explain the massive presence of African oil amphorae in Rome from the mid-second century onwards,⁸⁸ and in particular the increase of Tripolitanian amphora imports during the first quarter of the third century, when the *canon olearius* had been

⁸³ Malfitana, Bonifay, and Capelli (2007).

⁸⁴ Bang (2008: 3).

⁸⁵ Mattingly (2007).

⁸⁶ Vera (2010).

⁸⁷ Bang (2006; 2008).

⁸⁸ Rizzo (2003: 222). Even if oil was not freely distributed until the reign of Septimius Severus, it seems that the regularity of its supply had to be controlled by the *praefectus annonae* from the end of the reign of Hadrian onwards (Christol 2008).

instituted. In fact, Rome seems to contain most of the imports of African oil amphorae and most of the stamped ones.⁸⁹ The significance of stamps is quite clear when dealing with Tripolitanian ones mentioning an imperial estate or a senatorial family. But stamps mentioning a city name (Neapolis, Hadrumetum, Leptiminus, Sullecthum) do not necessarily have to be interpreted as evidence of city control over the supply to Rome,⁹⁰ because such stamps are also present on salted fish amphorae (Africana II), whose content does not ever seem to have been an *annona* product, and on wine amphorae (Dressel 30 from Tubusuctu), which pre-date the institution of the *canon vinarius*.

On the other hand, the chronological coincidence between the appearance of a new, widely distributed African amphora type (Keay 25) and the institution of the *canon vinarius* at the beginning of the fourth century (if we follow Vera 2005) is quite striking. Nevertheless, if most of the Keay 25 amphorae of the fourth century were really transporting wine,⁹¹ it is difficult directly to link the increase of these imports to the imperial economy, because these amphorae were distributed everywhere and not only in Rome, which seems to have been supplied mainly with the wine of the Italian provinces.

Finally, the *canon frumentarius* could be a possible explanation for the presence of ARS in Rome and, by ricochet (that is, the return cargoes) for the distribution of ARS not only in some major ports of the western Mediterranean (for example, in Gaul and in Spain), but also in Alexandria and in the Aegean, at least until the beginning of the fourth century. On the contrary, this model could hardly explain the massive distribution of ARS in the eastern Mediterranean after the foundation of Constantinople, except at the very end of the period, when the Byzantine Empire became more dependent on the African grain owing to the loss of Egypt in AD 642.⁹² At this stage, if we wanted to link—directly or indirectly—the distribution of ARS in the eastern Mediterranean to the imperial economy (and subsequently assign the disruption of this distribution to the mid-fifth-century collapse of the *annona* system), we might suppose that after c. AD 330 either some Egyptian fiscal grain was still supplying Rome or some African fiscal grain was from now on supplying Constantinople, for neither of which hypotheses do we have any historical evidence.

(b) The ‘Extra-Provincial Economy’

In order to proceed in our attempt at interpretation, it is perhaps necessary to put forward a second level of the Roman economy, the free market economy,

⁸⁹ Stone (2009).

⁹⁰ Manacorda and Panella (1993); Reynolds (1995: 47).

⁹¹ Woodworth et al. (2015). Other contents are not completely excluded: oil (variant to be defined), and fish products (possibly subtype 3). See also Reynolds (2010: 144, and nn. 331, 444).

⁹² Vera (2010).

which has been recently highlighted by D. Vera,⁹³ even if the organization of this market trade was probably quite different from the modern equivalent.⁹⁴

First, as far as the eastern Mediterranean is concerned, it does not seem completely unreasonable to imagine that Egyptian grain was still reaching Rome during the fourth century, but in this case it would be free market grain, arriving at Rome because of the brutal imbalance provoked by the new direction imposed on the Egyptian fiscal grain.⁹⁵ Thus, the eastern Mediterranean could still have been supplied with ARS (but not with amphorae) through return cargoes, and the first drop in ARS in this region, probably observable at the beginning of the fifth rather than in the middle of the century,⁹⁶ could be linked to a decrease in the western market, itself linked to new sources of grain supply⁹⁷ and/or to a drop in the population of Rome.⁹⁸

Second, as we have seen, the homogeneous African cargoes of wrecks discovered on the southern coastline of Gaul, as well as the Spanish–African mixed cargoes discovered in the Balearics, seem to prove that African foodstuffs were not solely redistributed from Rome. Therefore, we need the concept of a free market in order to help us explain, in the same way as the concept of an imperial economy did, the huge distribution of African foodstuffs in the western provinces.⁹⁹ We have already brought up the ‘opportunistic speculation’¹⁰⁰ that could have generated the possible supply to Rome of free market Egyptian grain during the fourth century. But the three other elements of the ‘bazaar’-shaped free market(s), as described by P. F. Bang, also find striking—even if sometimes ambiguous—testimonies.¹⁰¹ The ‘parcelling of capital’ and its maritime expression, ‘smallish ships’,¹⁰² is clearly evidenced by underwater archaeology, not only at a general level,¹⁰³ but also by homogeneous African wrecks;¹⁰⁴ moreover, the composition of such cargoes seem to reflect ‘a slow trickle of goods arriving in many individual instalments’.¹⁰⁵

⁹³ Vera (2010).

⁹⁴ Bang (2006; 2008).

⁹⁵ I thank B. Sirks, E. Lo Cascio, during the conference, and D. Vera, by mail, for helping me to reflect on this hypothesis. According to D. Vera, such a hypothesis could be effective in the decades following c.330, but it seems more probable that, at the end of the fourth century, Rome was entirely supplied by African, southern Italian, and island (Sardinia and Sicily) grain. See also Vera (1997–8).

⁹⁶ Bes (2015).

⁹⁷ Vera (1997–8).

⁹⁸ Zanini (1996: 682, and fig. 9).

⁹⁹ And maybe in the eastern Mediterranean, as an alternative to the return cargo explanation, as suggested by D. Vera in a personal communication. Some major cities (e.g. Alexandria) organized their own *arca frumentaria*.

¹⁰⁰ Bang (2006: 82).

¹⁰¹ Bang (2006: 80–3).

¹⁰² Bang (2006: 81).

¹⁰³ Boetto (2012: 167): ‘Ces petites embarcations sont révélatrices, au même titre que les plus gros tonnages, de grands trajets.’

¹⁰⁴ The ship *Héliopolis I*, sailing from Salakta to Marseilles or Arles (?) at the beginning of the fourth century, was ‘un petit bâtiment de 12 à 14m de longueur’ (Joncheray 1997: 164). The ship *Dramont E*, dating back to the second quarter of the fifth and sailing from Nabeul to Marseilles (?), was about 15 m long and of about 45 tonnes capacity (Santamaria 1995: 175–8).

¹⁰⁵ See the case of the Cap de Garde wreck at Annaba (Lequément 1975).

The 'social networks' between merchants¹⁰⁶ could find an archaeological reflection in the strange Spanish–African mixed cargoes of the second half of the third and the beginning of the fourth centuries. Last but not least, why not consider the very formal stamps with the city name as a response to the 'low standardisation of the products',¹⁰⁷ owing to the variable conditions in which these foodstuffs (oil, *salsamenta*, wine) were processed, in order to win the trust of the buyer?

Finally, as an expression of the inter-provincial economy and of the market trade, we should not forget to mention the caravan trade through the desert from Africa towards Egypt, as it seems that a part of the ARS and even some African amphorae found in the oases of the western desert and even in the Nile valley came not by sea but by road.¹⁰⁸

(c) The 'Provincial Economy'

As D. Mattingly explains that 'the provincial economy intersects with extra-provincial economies, whereby inter-regional movements of goods took place across customs zones at provincial boundaries', I think we could include in this category not only the trade within the huge province of Africa Proconsularis, well attested by archaeology,¹⁰⁹ but also the circular trade in the straits of Sicily, between Sicily and Tunisia. The strong connection between the pottery assemblages found on each side of the straits witness a very local trade, maybe a sort of peddling trade.¹¹⁰ In the same category, we have to include the road-based trade in central Roman Africa, which permitted diverse foodstuffs to travel from the gulf of Sirte to inland regions of Numidia and Mauretania Caesariensis, as attested by the tariff of Zarai¹¹¹ and by the distribution of the central and south-western ARS productions at Sétif and its surroundings.¹¹²

As shown by the short preceding remarks, and mostly by publications on African pottery since the early 2000s,¹¹³ this reflection on the distribution of African pottery in terms of economic history is still making constant and rapid progress. Since the 1970s the explanatory models have drastically moved towards more and more complexity, when considering the origin of the productions, the foodstuffs transported by the amphorae or accompanied by ARS, and the different mechanisms of trade. For the moment, at least one

¹⁰⁶ Bang (2006: 83; 2008: 239–89). ¹⁰⁷ Bang (2006: 82).

¹⁰⁸ Bonifay (2007c); Ballet, Bonifay, and Marchand (2012).

¹⁰⁹ Bonifay (2004: 449–52). ¹¹⁰ Bang (2006: 78).

¹¹¹ Troussset (2002–3). This text is now echoed by the recent discovery of third-century Mediterranean amphorae at Lambaesis (Bouteflika, Kitouni-Daho, and Malek 2011: 54).

¹¹² Bonifay (2013).

¹¹³ One of the most recent and important ones is the brilliant synthesis published by Reynolds (2010).

thing is sure: we need more conferences like the one from which this volume originates, appealing to a close collaboration between archaeologists and historians, in order to extract from the African pottery all the information this modest documentation could legitimately provide us.

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The Supply Networks of the Roman East and West

Interaction, Fragmentation, and the Origins of the Byzantine Economy

Paul Reynolds

INTRODUCTION

It has been half a century since A. H. M. Jones's work on the Later Roman Empire discussed the economy of the Roman Empire in its entirety: the Roman West and the Byzantine East.¹ Studies of pottery and the Roman economy have tended to focus on the western Mediterranean, on specific provinces, or on Africa and the *annona*, primarily because quantifiable data from the excavations in the eastern Empire have not been available. My work on ceramic sequences in Beirut, Athens, and Butrint (southern Albania) has provided me with the opportunity to offer new data for a somewhat more balanced, less western-biased, assessment of the Roman economy from the Black Sea to the Atlantic (Fig. 12.1),² building on Panella's fundamental article on the subject.³

This chapter will examine the degree to which one can speak of a 'Byzantine economy', a product of, and serving, the Byzantine East. To what extent was the Byzantine economy either new or idiosyncratic and not mid- or early Imperial, or even Hellenistic? Is the concept of a Byzantine economy a valid proposition? From the outset, I should state that by 'Byzantine' I am referring to the East from the foundation of Constantinople in AD 330 and to the existence

¹ Jones (1964; 1966).

² Reynolds (2010a: chs 3–5; in preparation a–c).

³ Panella (1986).

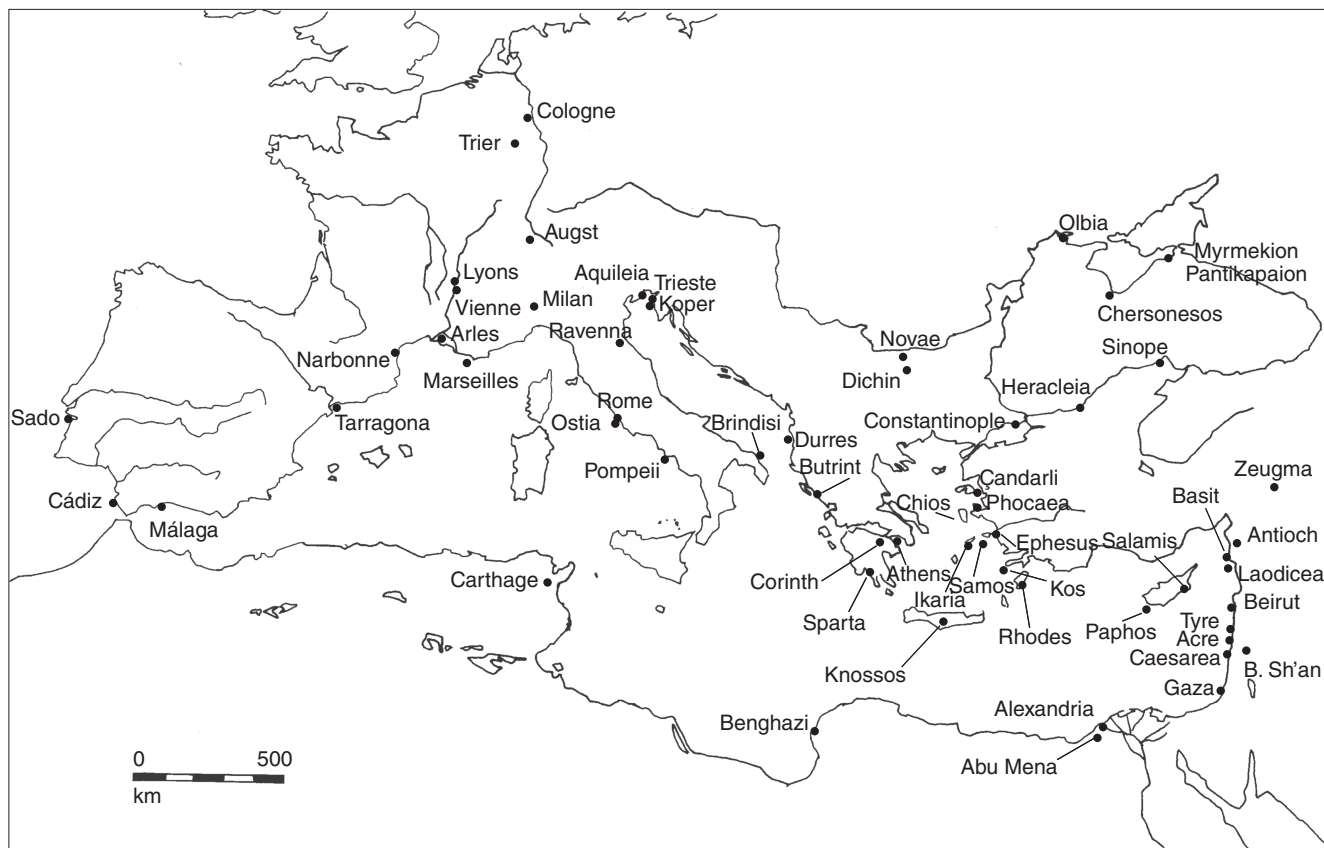


Fig. 12.1. Map of sites mentioned in the text

by the mid-fourth century of two administrative sectors of the Empire, before the definitive legal split of the administration in AD 395.

In the case of amphora production in the Levant, though some amphorae, as we shall see, were new introductions in the Byzantine period and can be associated with agricultural expansion or innovation in the fourth century, the more general economic pattern is one of continuity from the early Imperial period. It is possible to trace the origins of the city and regional economies of the Byzantine East back, not just to Diocletian and the Tetrarchy, but to the early second century AD at least. The economic elements were in place in the early Empire.

For interprovincial trade and exports between East and West, can we detect a separation of the networks of the Empire into two halves? If so, at what point did this occur? Indeed, pottery imports and exports do provide evidence for such a separation between the eastern and western economic blocs, but this break has its origins in the mid- or possibly early third century, in the Severan period, well before the foundation of Constantinople. It was accompanied by a shift towards greater close regional production and trade in the case of the Levantine provinces.

AMPHORA TYPOLOGIES: LONG-LIVED FORMS

First, we must address the theme of amphora typologies and a problem of nomenclature, because it carries with it a concept that I believe to be inappropriate. Since the excavations in Benghazi and Carthage, the principal, most commonly exported amphorae of the Byzantine East were classified as 'Late Roman': Late Roman Amphora 1 to 7 (Fig. 12.2: LRA 6, not illustrated, is the black-fired 'bag-shaped' amphora of Beth Sh'an).⁴ These were identified in the West in contexts of the late fourth century onwards in the case of Gazan LRA 4 and Cilician-Cypriot LRA 1, or the fifth century for Aegean LRA 2 and Ephesian LRA 3, and as late as the late fifth century in the case of the Palestinian LRA 5.⁵ However, excavated sequences in Beirut paint quite a different picture. Here, and along the Levantine coast, all these amphorae, or, rather, their predecessors, were being traded far earlier than they appear in the West, from the early second century onwards in most cases.⁶

Fig. 12.3 provides a guide to the principal regional amphorae that were produced in the Levantine provinces and their cities by the early second century AD. These amphorae—and one could add many others—can be seen to have evolved over many centuries. The continuity of production or, in

⁴ Riley (1979; 1981).

⁵ Reynolds (2005: 611, Table 1).

⁶ Reynolds (2005).

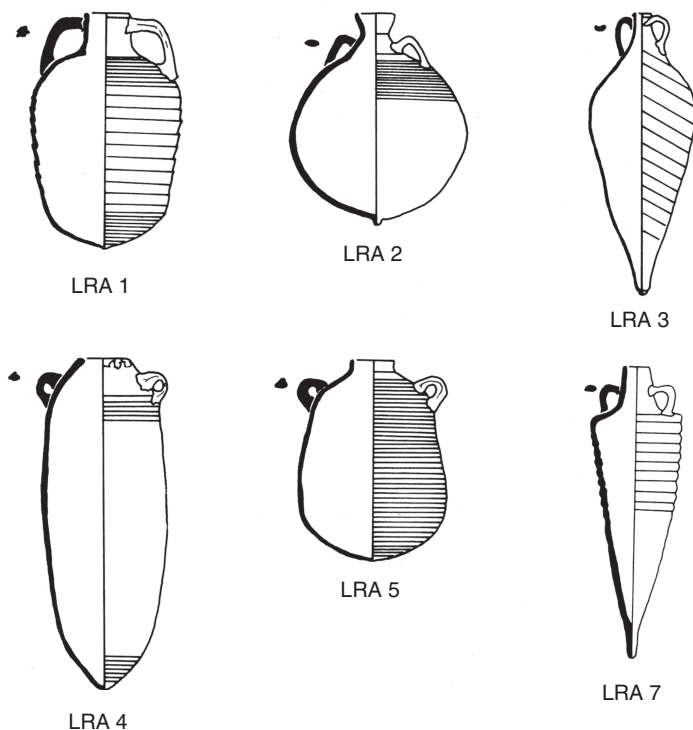


Fig. 12.2. Late Roman Amphora 1–5 and 7 (from Riley 1981: fig. 10)
(reproduced with kind permission of the Kelsey Museum of Archaeology, University of Michigan)

contrast, the introduction of new types throughout the early, mid-, and late Imperial periods, offer us the opportunity to identify regional, in some cases city-specific, agricultural continuity, rupture, or innovation.⁷

In the case of the Beirut amphora, the type can be traced back to the late second century BC. It evolved in a linear fashion through generations of potters, transforming into a shape that is almost unrecognizable by the seventh century (Fig. 12.4). As such it represents a continuous period of economic output of this particular city and its territory.⁸ The LRA 1 type was the most common eastern amphora export of the fifth and sixth centuries, reaching all corners of the Roman Empire. But sequences in Beirut allow us to trace its origins to at least the mid-third century, when it comprised 5.3 per cent of imports. Its immediate predecessor in terms of function and source was the similarly small Pompeii 5, whose development can be traced from the mid-first to early third centuries AD (Fig. 12.5).⁹ Second- and third-century

⁷ Reynolds (2005; 2008).

⁸ Reynolds (2000; 2008).

⁹ Reynolds (2005; 2008; 2010a: table 4); Opaît (2010).

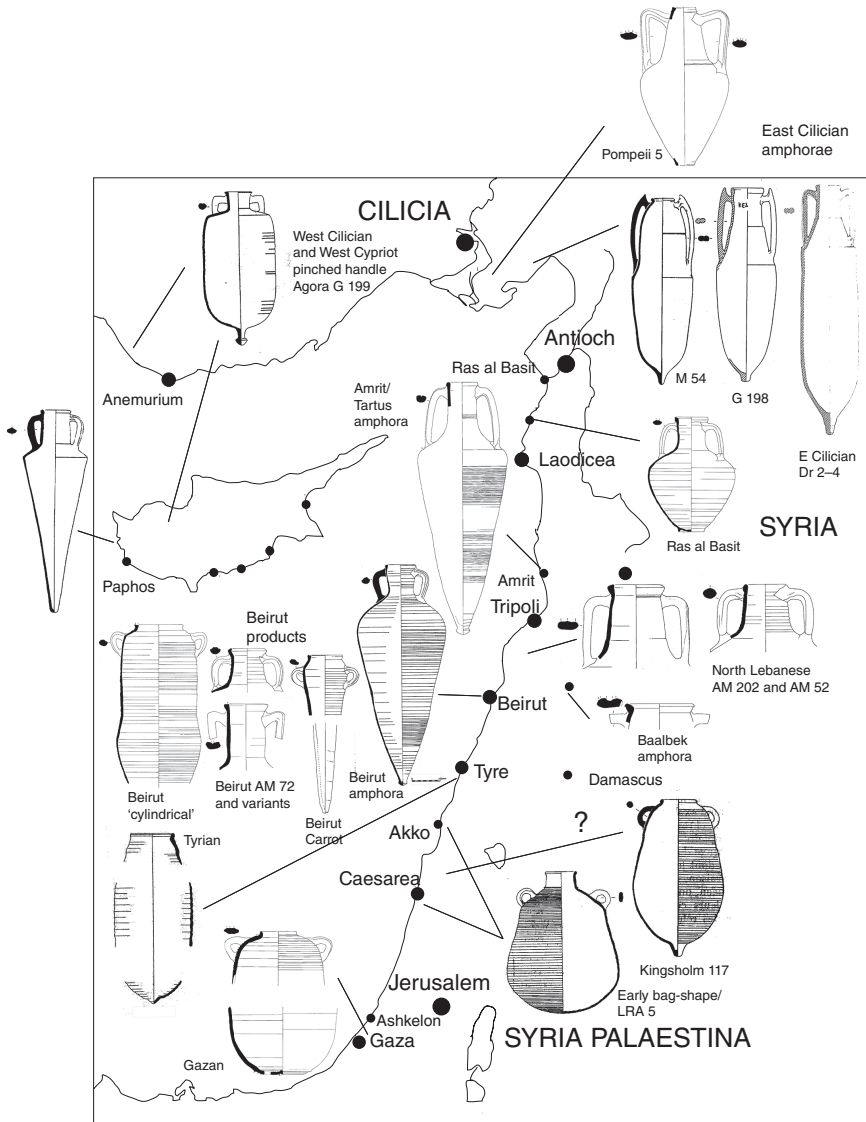


Fig. 12.3. Levantine amphorae of the second century AD

versions of LRA 4 and 5 are common in Beirut. In fact, their origins go back well into the Hellenistic period, and in the case of Gazan LRA 4 the type was already in existence in the eighth century BC (for example, the *Tanit* and *Elissa* shipwrecks).¹⁰

¹⁰ Ballard et al. (2002); Reynolds (2005: 573–5).

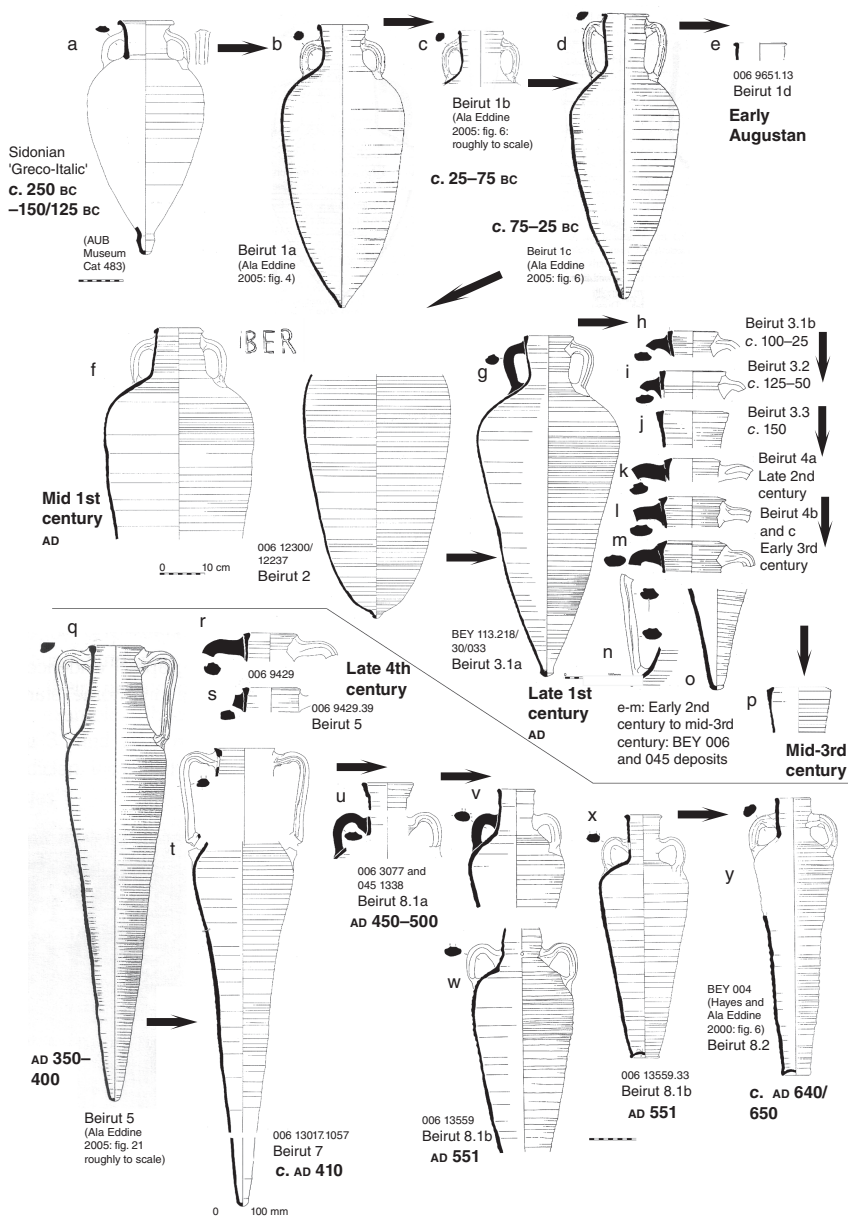


Fig. 12.4. The development of the Beirut amphora, from its late Hellenistic late third- to second-century BC Sidonian predecessor (*a*) and its first appearance (in Beirut fabric) in the late second century/100 BC (*b*), to the latest examples of the seventh century AD

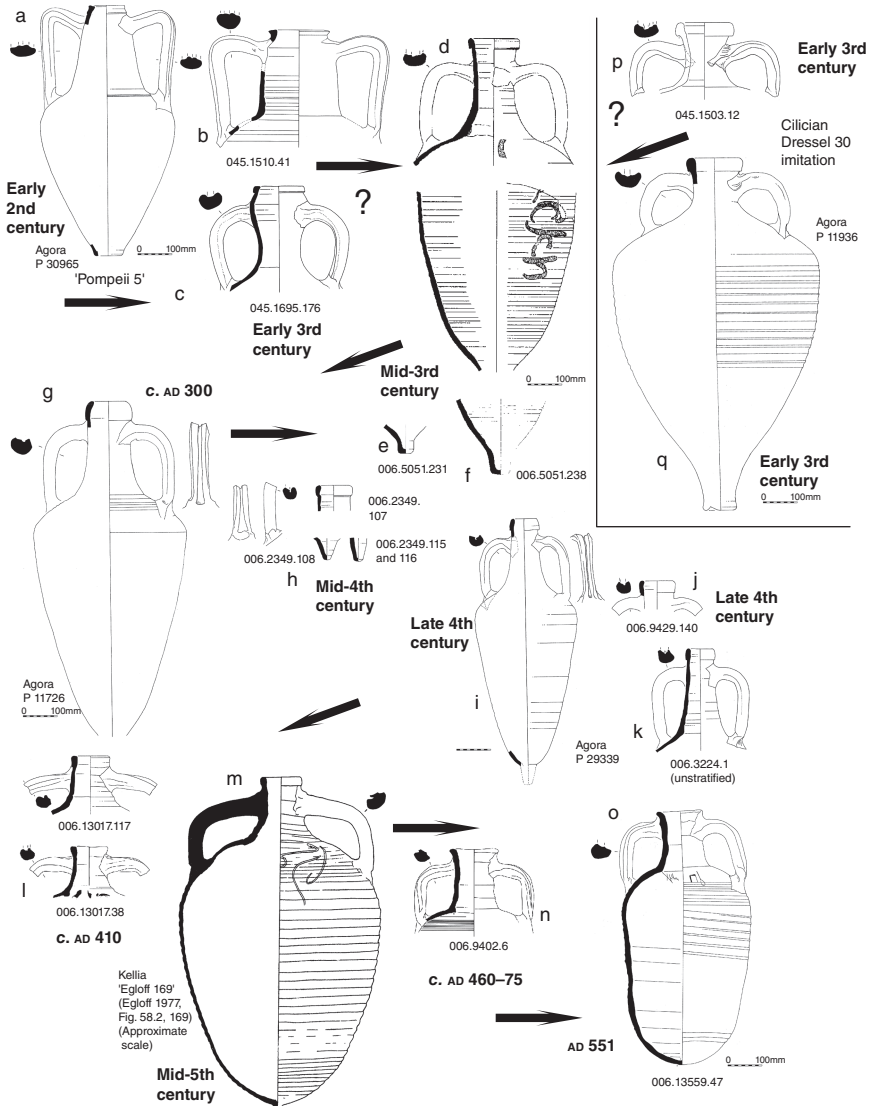


Fig. 12.5. The origins and development of the Late Roman Amphora 1 type from the first to seventh centuries AD

Even though they are found in Byzantine contexts, why call these, and the others we have mentioned, 'Late Roman' or 'Byzantine' amphorae? I believe we should be looking for continuity in economies, just as much as for rupture. The classification of ceramics into early, mid-, and late Imperial forms is not always appropriate, as it assumes or imposes rupture from the outset. This is not to say that there were not new forms that were exclusively

fourth- or fifth-century Byzantine, but, even in the case of the major fourth-century 'Byzantine' oil and wine presses established in northern Palestine/southern Phoenicia, it is clear that the new associated amphora types, though typical in the fourth century, appeared in the early third (Reynolds AM 14) or mid-third century (Agora M 334). The Palestinian boom in wine production (illustrated by the similar expansion of production in the Gaza region) had its roots in the Severan period.

TRADE CONNECTIONS, SECOND TO SEVENTH CENTURIES

Having clarified this point, I will now summarize the various stages of interprovincial trade between East and West and regionally within the two sectors. The comparison of the range of eastern and western goods supplied to Beirut, on the Levantine coast, and to Butrint, on the path to southern Italy and the Adriatic, is instructive and demonstrates quite different trends in the goods supplied. If we add to these the supply to the Lower Danube, to Athens, Knossos, and Brindisi, to Alexandria and Benghazi, strong, diverse patterns emerge. Nor were these trends constant through the second to seventh centuries.¹¹

A sequence of maps (Figs 12.6–12.11) is provided as a guide to the supply of imports (all classes) to Beirut and Butrint through the third to seventh centuries, the line thickness being a rough indication of the relative quantities of regional imports. I have tried to maintain the same notion of quantity-line thickness throughout the maps.

First half of the second century

In Beirut in the second century, close regional, Levantine amphorae were the dominant imports (Fig. 12.3, Table 12.1): primarily wine from Amrit, with lesser western and eastern Cilician forms (pinched-handle amphorae Agora G 199 and *Schöne-Mau Pompeii* 5), as well as north Palestinian bag-shaped amphorae, the precursors of LRA 5. Rare at this point were Gazan and Black Sea amphorae.¹² West Mediterranean imports comprised Baetican and Portuguese fish and wine, but no Campanian amphorae, despite the imports of

¹¹ See Reynolds (2010b), for a more detailed review of the evidence, fuller references, and illustration of the pottery forms discussed.

¹² Reynolds (1999; 2005).

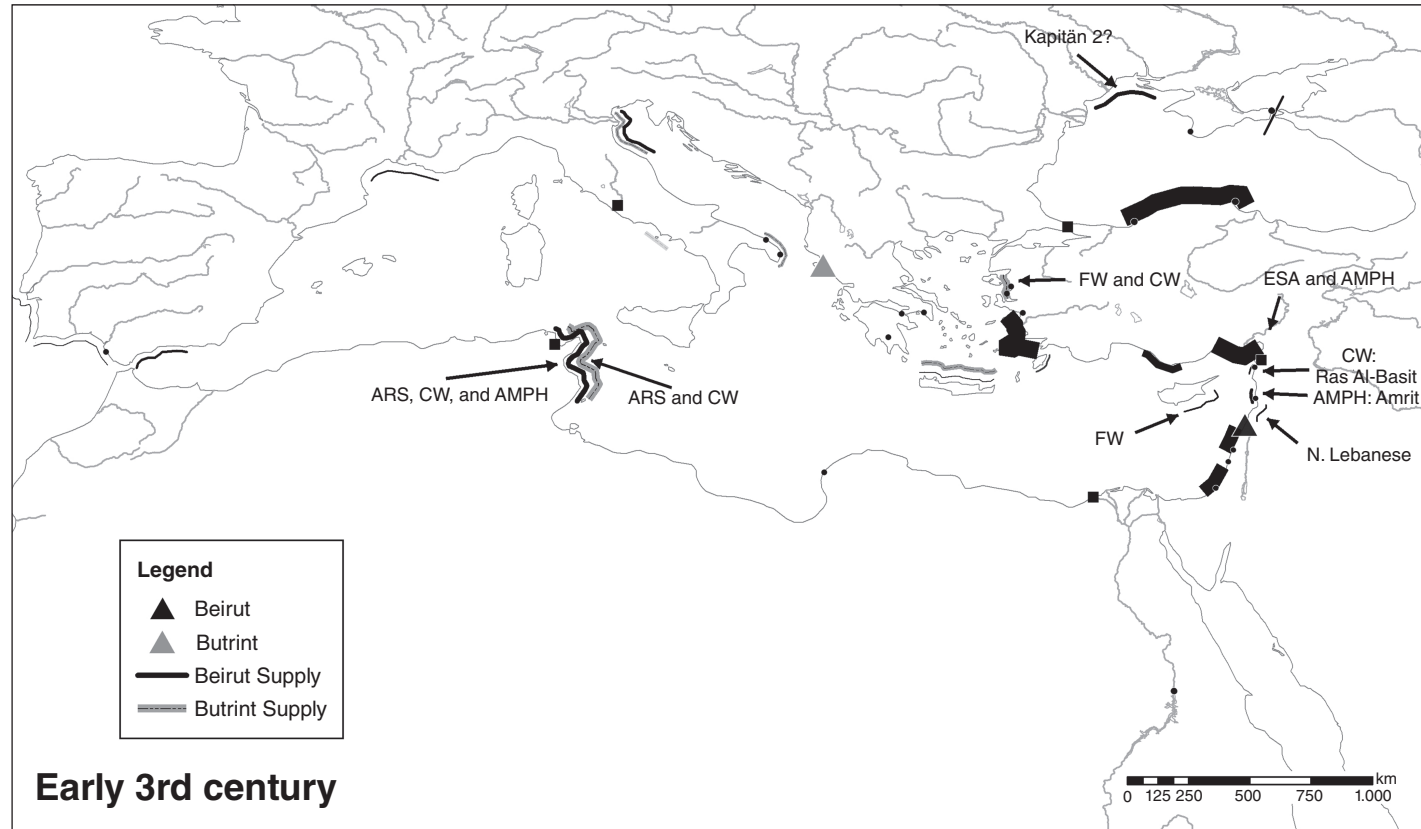


Fig. 12.6. Map showing the sources and relative quantities of imports to Beirut and Butrint, early third century AD

Source: Produced by Juan Ruiz, University of Barcelona.

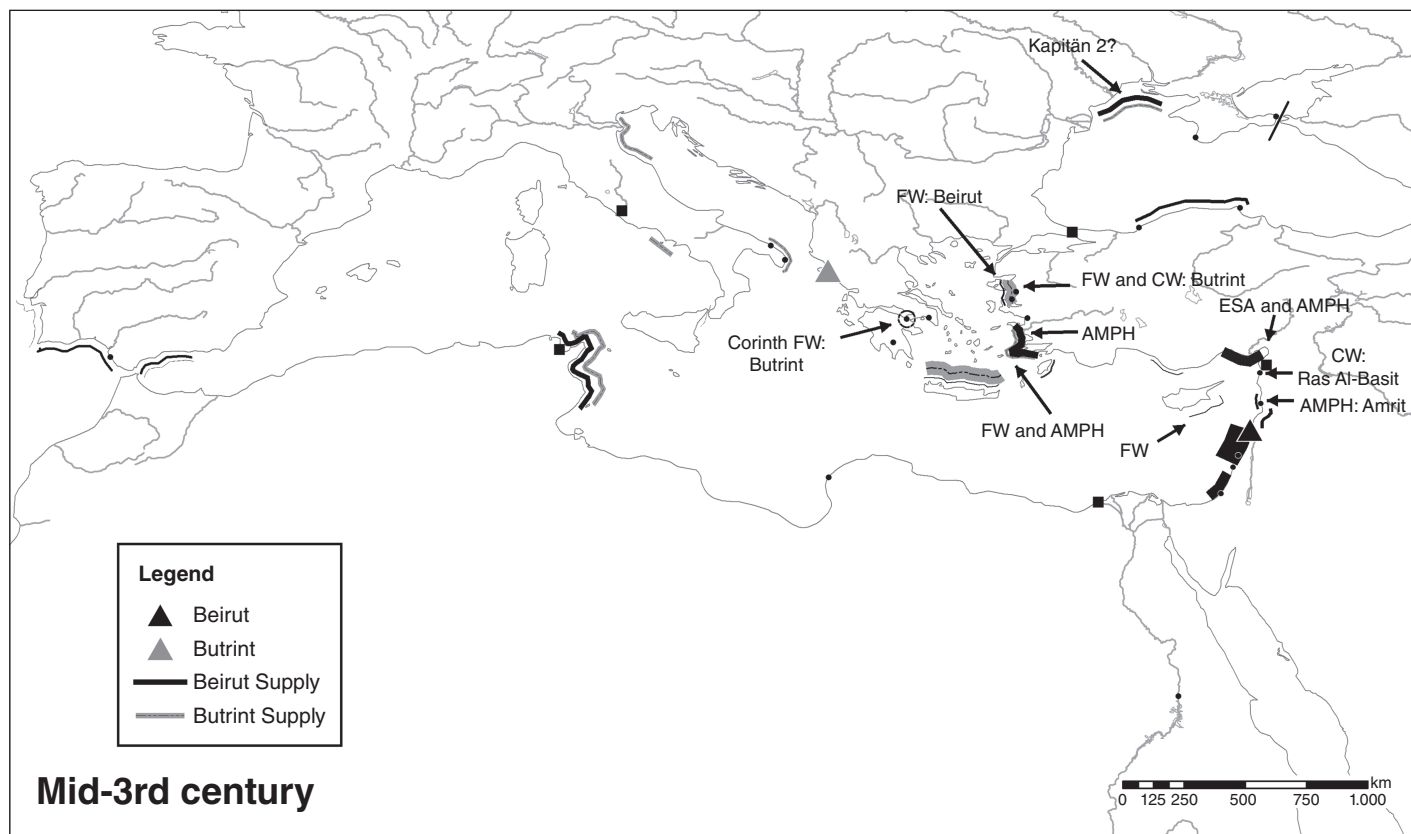


Fig. 12.7. Map showing the sources and relative quantities of imports to Beirut and Butrint, mid-third century AD

Source: Produced by Juan Ruiz, University of Barcelona.

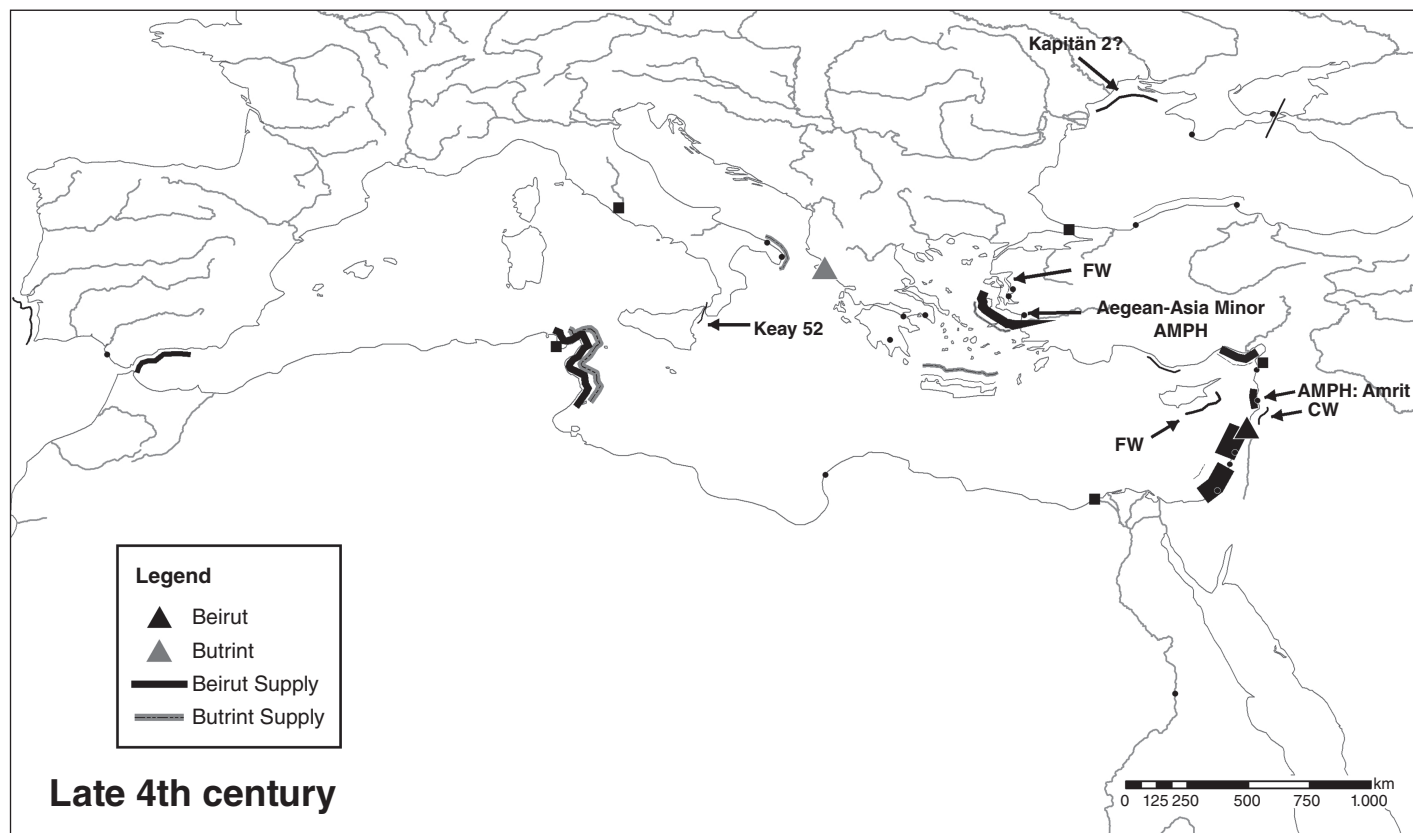


Fig. 12.8. Map showing the sources and relative quantities of imports to Beirut and Butrint, late fourth century AD

Source: Produced by Juan Ruiz, University of Barcelona.

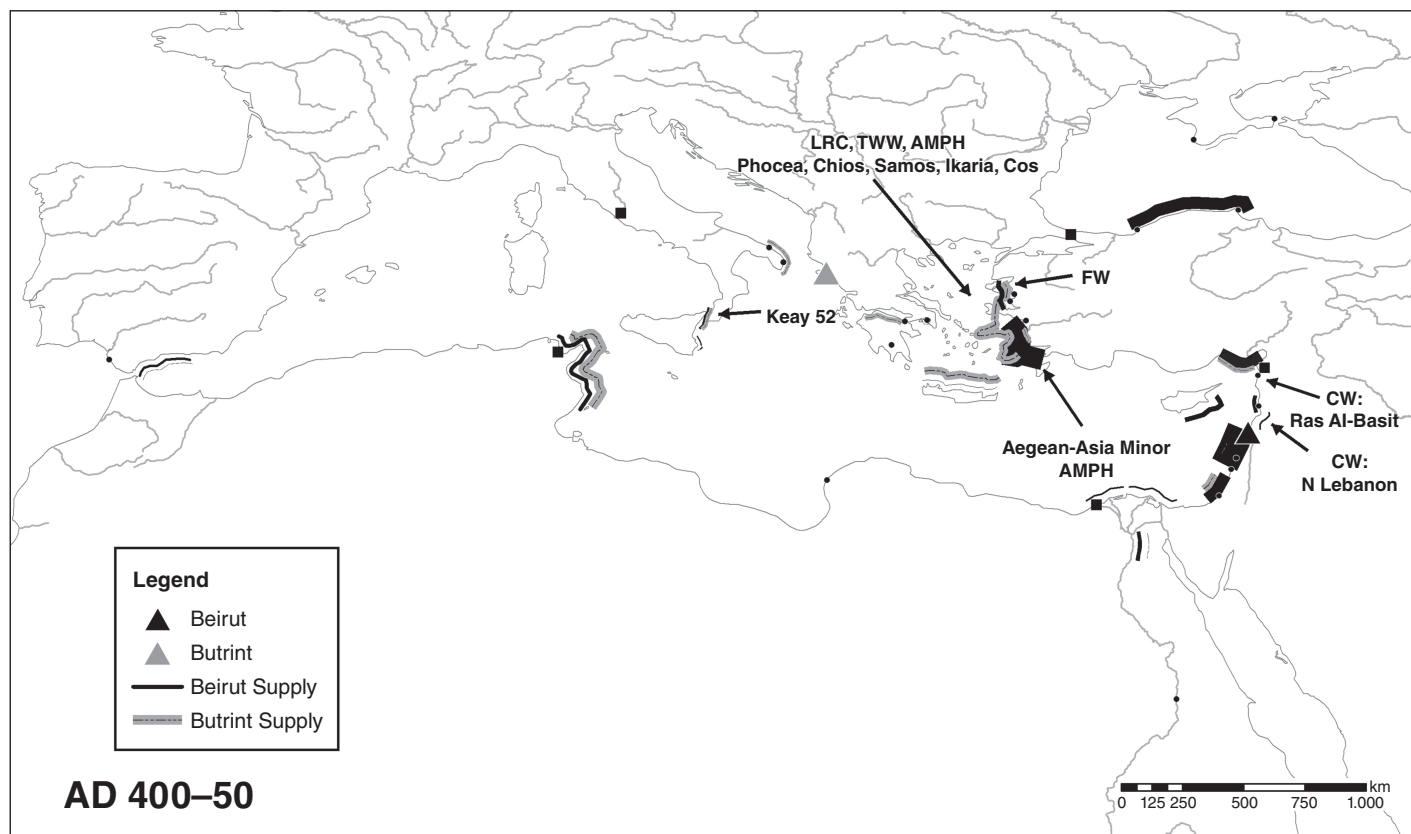


Fig. 12.9. Map showing the sources and relative quantities of imports to Beirut and Butrint, AD 400–50

Source: Produced by Juan Ruiz, University of Barcelona.

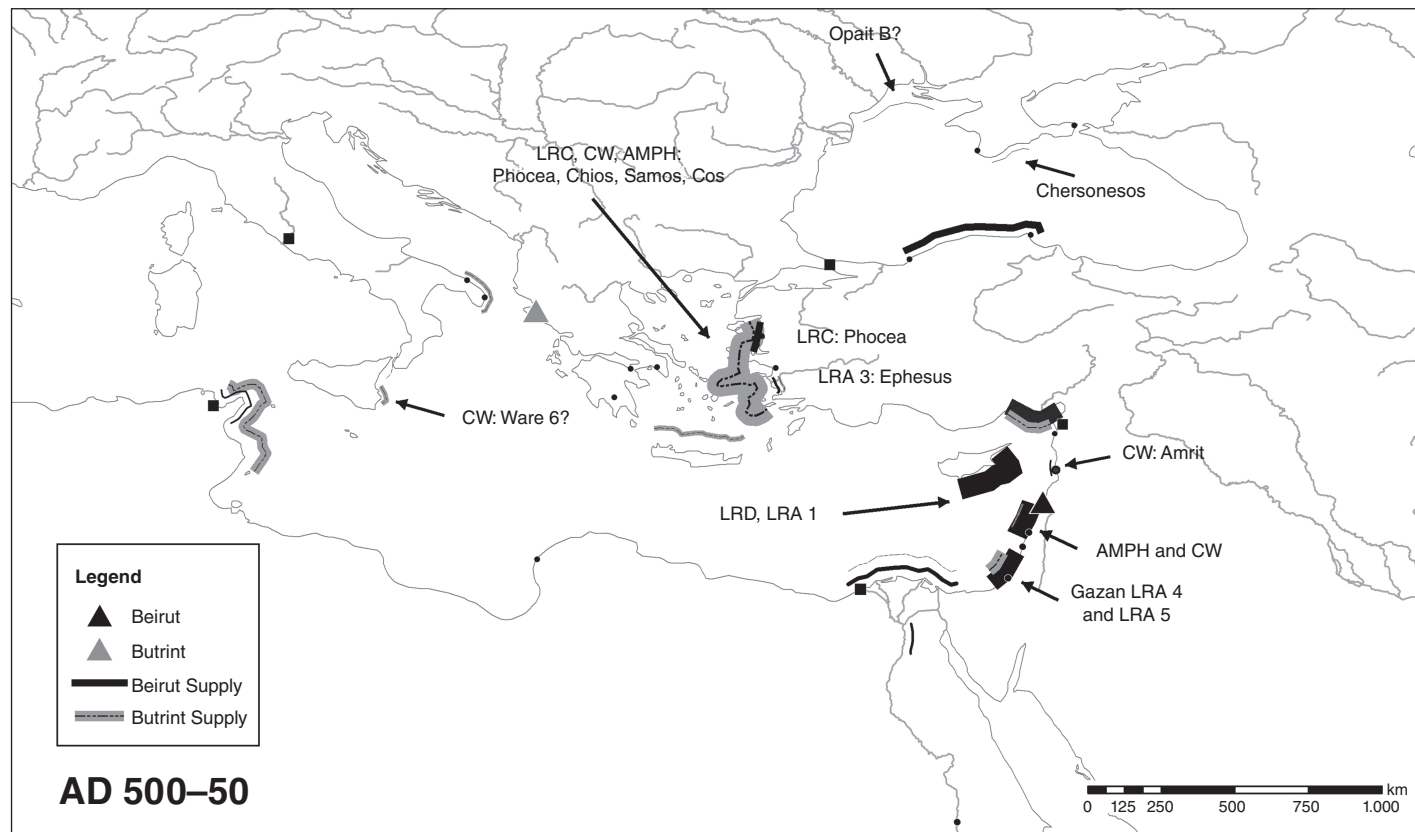


Fig. 12.10. Map showing the sources and relative quantities of imports to Beirut and Butrint, AD 500–50

Source: Produced by Juan Ruiz, University of Barcelona.

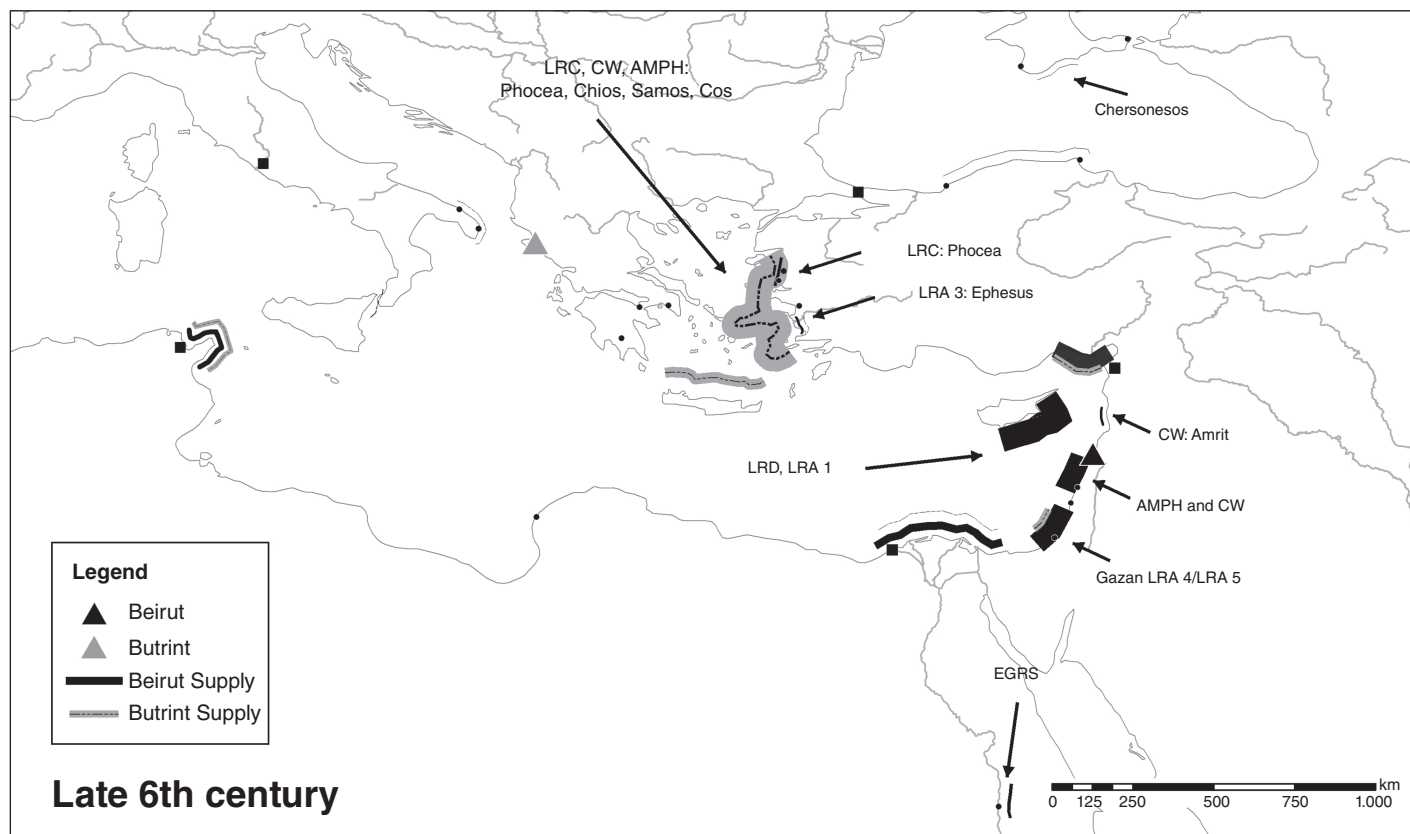


Fig. 12.11. Map showing the sources and relative quantities of imports to Beirut and Butrint, late sixth century AD

Source: Produced by Juan Ruiz, University of Barcelona.

Table 12.1. Guide to the distribution of imports in the second century AD

Imported to	Exported products										
	Syrian, Phoenician, and Palestinian wines	Phoenician figs and dates	East Cilician fruit and wine	West Cilician wine (<i>passum</i>)	Aegean wines	Cretan wine	Black Sea fish	Campanian wine	Gallic wine	African fish	Spanish fish
Beirut	●	Rare	●	●	●	■	Rare	■	Rare	Rare	●
Paphos	●	■	■	●	●	■	■	■	Rare	Rare?	●
Athens	■	Rare	●	●	●	●	●	■	Rare	Rare	●?
Crete	■	Rare	■	■	●	●	●	■	Rare	Rare	●
Butrint	■	■	■	■	Rare Samian	●	■	●	■	■	Rare
Rome	● = Only Kingsholm 117	●	Rare	Rare?	●	●	■	●	●	●	●

Note: ● (common); ■ (absent).

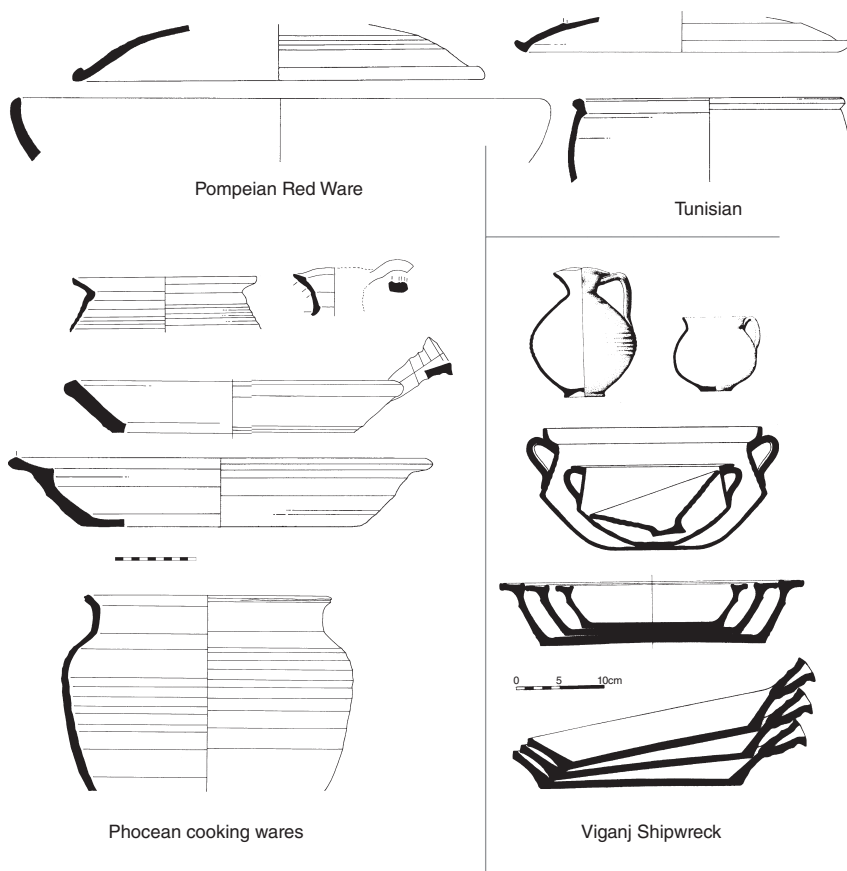


Fig. 12.12. Butrint, third-century AD imported cooking wares; Phocian imports in the Viganj shipwreck (Jurišić 2000)

Pompeian Red Ware. Phocian cooking wares (but only frying pans and baking dishes) are common (Fig. 12.12).

The supply of long-distance imports to Paphos was similar to that of Beirut, with a wide range of Aegean amphorae dominating, alongside Spanish fish imports.¹³ East Cilician, North Syrian, and Palestinian amphorae are less evident, however. The Levantine cities traded between themselves, Cilicia perhaps supplying Egypt through the Syrian port of Laodicea.¹⁴

In Athens the same wine and fruit amphorae from eastern and western Cilicia are even more common: the Pompeii 5 (predecessor of LRA 1), Dressel 2–4, and large fruit amphorae (Agora G 198) (Figs 12.3 and 12.13);¹⁵ small Black Sea

¹³ Hayes (1991).

¹⁴ Tomber (1998; 2006: 168–9, 171); Arthur and Oren (1998).

¹⁵ Robinson (1959); Reynolds (in preparation c).

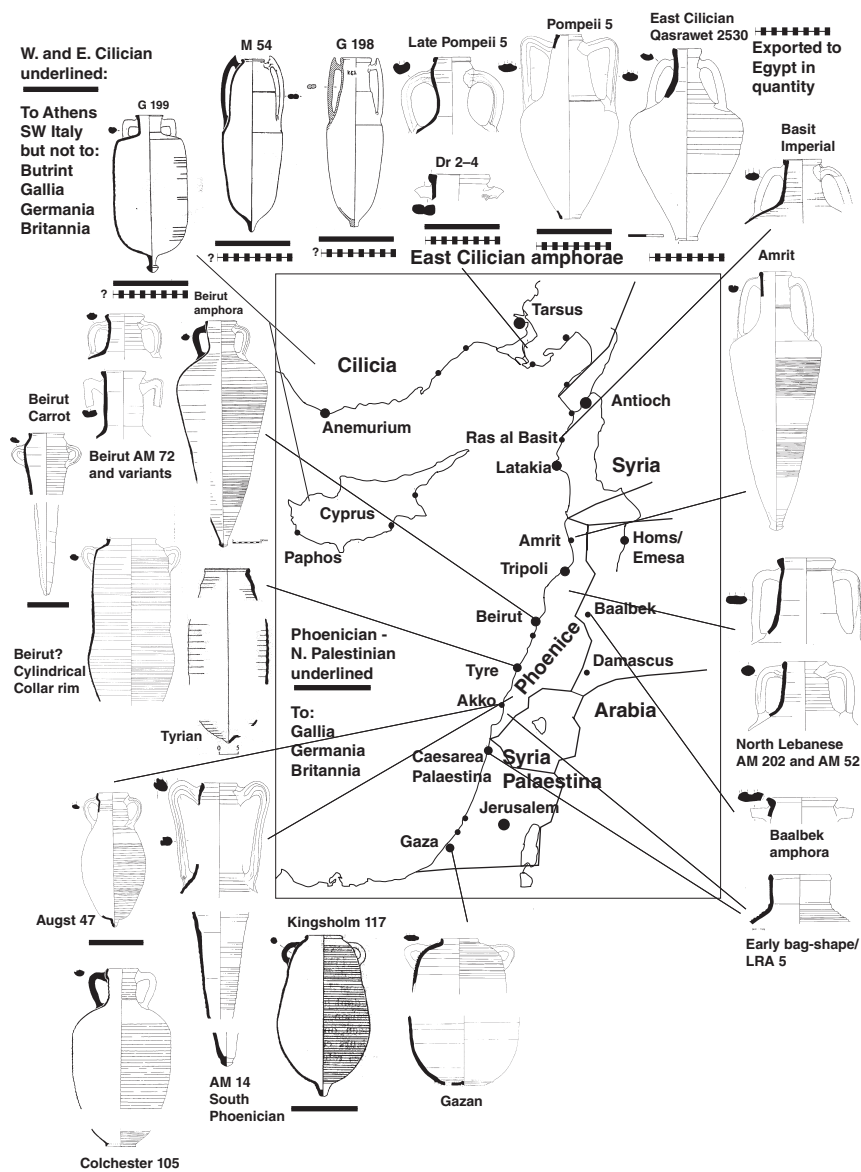


Fig. 12.13. Levantine exports to the West and Egypt (second-third centuries AD)

'argile claire' amphorae, as well as large Crimean amphorae, both perhaps for fish products, appear here but not in Beirut; Cretan wine was a major import,¹⁶ as was also Asia Minor wine in the one-handed precursors of LRA 3.¹⁷ Most of the long-distance imports found in Athens are found equally at Knossos. Spanish *garum* was a significant import at Knossos.¹⁸

At Butrint, opposite Corfu in the southern Adriatic, Campanian and north Italian amphorae were regular imports in the second to mid-third centuries. Cretan amphorae were regular but not significant imports until the third century. Black Sea and Spanish amphorae, in contrast, were scarce. There were no contacts with the Levantine provinces.

There are several distinctive points about Rome and Ostia's eastern supply.¹⁹ Eastern imports derived primarily from Crete, and on a massive scale. The range of Aegean amphorae was wide. Black Sea and Cilician imports, however, were rare, despite their presence in first-century AD Pompeii. Rome derived its wines from Gaul, Tarraconensis, Crete, and the Aegean, and its oil from Baetica, Tripolitania, and Africa Proconsularis. Levantine wine amphorae found in Beirut, those of Amrit, Acre, or Gaza, for example, are absent or, in the case of Tyrian amphorae, very rare.

What were reaching Rome, as well as Pompeii, southern Gaul, Germany, and Britain, from the late first century AD were small 'carrot' amphorae carrying the dates, figs, and prunes of Beirut (Fig. 12.13, middle left).²⁰ The large (north Palestinian?) Kingsholm 117, surely a wine amphora, was also a regular export to Rome and southern Gaul (Fig. 12.13, bottom middle).²¹

The early third century

The early Severan period of the late second to early third centuries was marked by Severus' ruthless takeover of the Baetican, Tripolitanian, and, perhaps also, African/Tunisian olive oil production, so gaining a firm grip in order to supply the metropolis with free oil—a Severan innovation, we should remember (Fig. 12.6). The western oil industry, certainly not that of the East, operated under unusual, novel circumstances in the reign of Severus. As in the second century, the East formed no part of this supply network at any time, except for certain major administrative centres such as Antioch and Alexandria, and even there Spanish, Tunisian, and Tripolitanian oil was only irregularly

¹⁶ For Cretan forms of the Imperial period, see Marangou-Lerat (1995).

¹⁷ See Lemaître 1997 and Pieri 2005: 94–101.

¹⁸ Hayes (1983); Sackett (1992).

¹⁹ Panella (1986); Rizzo (2003); Coletti and Lorenzetti (2010); Reynolds (2010a: tables 1, 2a–b).

²⁰ Reynolds et al. (2010); Vipard (1995).

²¹ Rizzo (2003); Coletti and Lorenzetti (2010); see also Lemaître (2000); Pieri (2005: 115–16, fig. 75).

supplied in the first to third centuries.²² Syria and Egypt, where the troops were spread across towns and fortresses, derived their oil from local sources, even before Diocletian created a taxation system designed to serve the provinces' military needs, based on *capitatio* and *iugatio* assessments.

Beirut in the early third century

In the early third century Beirut's range of imports, as before, comprised primarily the products of the Levantine cities, from Cilicia to Gaza, but still not Egypt: this was out of the picture until the early fifth century.²³ Gazan amphorae now appear in force for the first time. East Cilician 'late Pompeii 5', the predecessor of proto-LRA 1, is common, together with the wine amphorae of Amrit (Figs 12.5b–c and 12.3). Note that the southern Phoenician wine amphora AM 14 (Fig. 12.13, bottom left), typical in fourth-century contexts, appears for the first time and in quantity in the early third century.²⁴

Wine from Asia Minor (various sources) in one-handed variants of MRA 3 (7 per cent), and amphorae carrying fish products from the Crimea (1.5 per cent) and especially Sinope (16 per cent), were the most significant long-distance imports in Beirut (Fig. 12.14c–e). The Kapitän 2 wine amphora was also relatively common (3.5 per cent; Fig. 12.14a–b): it accounts for a large percentage of the Aegean amphorae published from Rome and Ostia, for example. This amphora is generally classified as an Aegean type, but the classic fabric, similar to that of Crimean amphorae, as well as its distribution could point to a Black Sea, not necessarily Aegean, origin. If so, Black Sea imports as a group comprise as much as 21 per cent of the imports.²⁵

Western imports to Beirut, at c.10 per cent of the total, were Spanish and more rarely Tunisian fish sauce and African Red Slip (ARS) ware, together with north Italian wine. The latter also reached Athens and the Black Sea.

Beirut in the mid-third century: a shift to closer regional supply systems

The mid-third-century, late-Severan, phase in Beirut is a period marked by major interprovincial trade from the same sources (Fig. 12.7).²⁶ But a closer comparison between the early and mid-third-century assemblages highlights some significant shifts in supply. By the mid-third century north Italian wine amphorae exports end, Spanish imports drop, and Portuguese amphorae are

²² Bonifay (2007); Reynolds (2010a: nn. 88, 272).

²³ Reynolds (2010a: table 4b).

²⁴ Reynolds (2005: 570–1, 601, pl. 14).

²⁵ Reynolds (2010a: nn. 187, 212; 2010b).

²⁶ Reynolds (2010a: table 4a–b).

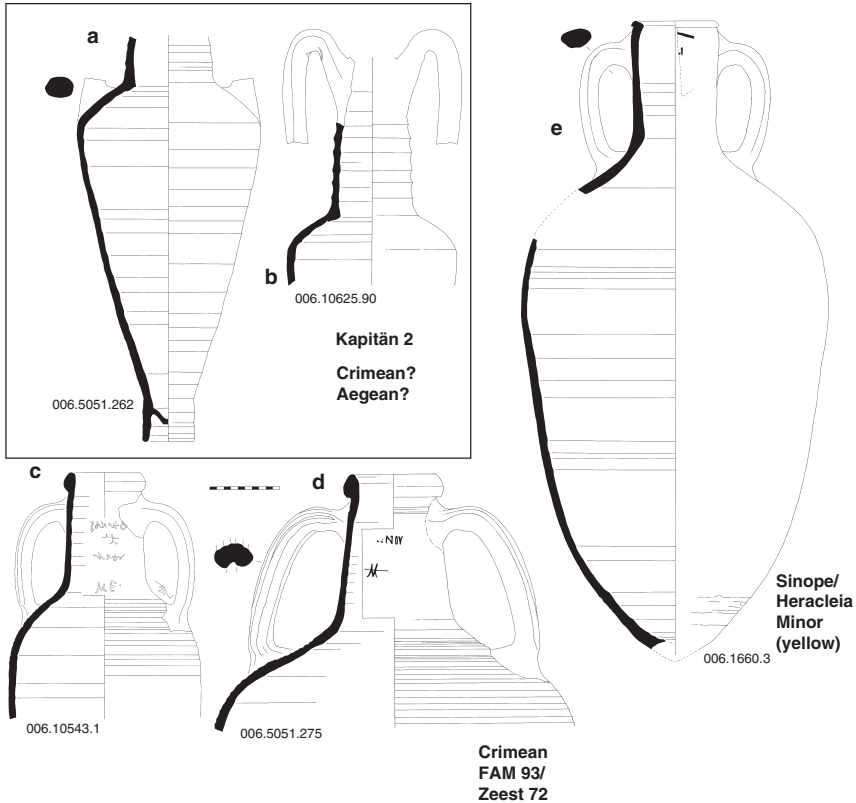


Fig. 12.14. Beirut, third-century AD Kapitän 2 and Black Sea amphorae

now absent. Whereas Kapitän 2 (2.4 per cent) and Crimean (2 per cent) amphorae remain at a similar level, Sinopean amphorae drop from 16 per cent to 4.7 per cent. Asia Minor exports are reduced to a large number of (one-handed) proto-LRA 3 (as high as 13 per cent).²⁷

The appearance *en masse* of central Tunisian ARS C finewares is a Mediterranean-wide phenomenon. In Beirut these were not accompanied by a similar rise in Tunisian amphorae. There may also have been an increase in close regional finewares (ESA and Cypriot/Rhodian).

Closer to home, the wine amphorae of Amrit–Tartus show a significant drop from 8 per cent to 2.6 per cent and there was a major drop in west

²⁷ Though absent in the large deposit BEY 006 5051 (448 imported amphora RBH), which provides the mid-third-century figures/percentages used in this chapter, the Asia Minor oil amphora Dressel 24 does appear (3 examples, 2.1%) in another similarly dated deposit (BEY 006 10625) (137 imported amphora RBH). Note that, for reasons of space, an abbreviated version of the data from these third-century deposits was presented in Reynolds (2010a: table 4b).

Cilician wine, from c.5 per cent to less than 1 per cent. In contrast, there was a rise in North Lebanese amphorae, carrying local wine or oil. More striking is the fact that the long-lived Tyrian amphora, the earliest examples dating to the seventh century BC, ceased production.

North Palestinian/south Phoenician amphorae now increased their share massively from c.10 per cent to over 35 per cent (August 47–48: carrying dried fruit from Akko-*Ptolemais*?; Fig. 12.13, bottom left; the predecessors of LRA 5: wine; AM 14 and a few early examples of Agora M 334: wine). Gazan wine imports remained high (8.4 per cent). In short, there was a significant increase in the close regionalization of production and supply. Was Tyrian wine replaced by that of new villages and presses established in southern Lebanon, transporting their wine in the new forms AM 14 and Agora M 334?

It is in the mid-third century, the late Severan period, that the typological shift from Pompeii 5 to 'proto LRA 1' occurs (or at least that the latter type appears as a new amphora) (Fig. 12.5). This is certainly well before the fourth century. As we have seen, it is now also that the small August 47–48 amphora appears, and in quantity. Given that western exports of August 47 are generally dated to the late second or early third century, the Beirut finds appear to indicate a shift in their supply to close regional markets by the mid-third century.

The early to mid-third-century supply to the west

How does the supply of Beirut and the Levant over the early to mid-third century compare to ports on the shipping routes to the Adriatic and Rome (Figs 12.6–12.7)?

The full range of Black Sea amphorae was supplied to Athens and Knossos, but Sinopean amphorae were far more significant in Beirut: the city clearly had a special connection with this source from the third century onwards. The same range is found in Brindisi, but with the important exception of the Crimean fish amphorae.²⁸ Were these redistributed to Crete from Athens?

The supply to Ostia and Rome is remarkable for its concentration on Kapitän 1 and 2. The Sinope and Crimean amphorae found in Athens appear to be absent (or very rare). Exports of Kapitän 1 and 2 continued at Ostia until the end of the fourth century.²⁹ Both forms were present in similar quantities at Lyons in the early third century.³⁰ In contrast, only Kapitän 2 is found in Beirut, Corinth, and Benghazi. At Benghazi the peak in imports of Kapitän 2 is in the early third century (c.9 per cent), whereas they drop to 1.5 per cent in the mid-third century.³¹ Also in Libya, the form represented 4.6 per cent of

²⁸ Auriemma and Quiri (2004).

²⁹ Clementina Panella (pers. comm.).

³⁰ Lemaitre (2000).

³¹ Riley (1979).

diagnostic amphora sherds in a context of c.250–60 in Lepcis Magna.³² Overall, there may be some correlation between a possible drop in numbers in Libya and their major marketing towards Brindisi, Ostia, and Rome by the mid-third century. Rome and Ostia were the most important markets for Kapitän 1 and 2 in the West.

The ‘pinched-handle’ wine amphora Agora G 199, produced in both western Cilicia and western Cyprus, was a major export to Athens. Unlike eastern Cilician Pompeii 5, Agora G 199 was supplied in quantity to Brindisi (c.5–8 per cent). It is scarce in the northern Adriatic (Trieste, Aquileia)³³ and is absent in Butrint. This amphora is not very common at Ostia in the late Antonine period (2.7 per cent)³⁴ and seems to be absent by the mid-third century.

Levantine amphora exports from eastern Cilicia to Gaza during the early and mid-Imperial periods show diverse distribution patterns with respect to western and Egyptian markets, some forms, notably those carrying the wine, oil, and possibly *garum* of Phoenicia, hardly ever being exported (Fig. 12.13). In the first to third centuries it was only the dried fruits of Roman Phoenicia that reached western Italy (Pompeii, Rome), Gaul, Germany, and Britain.

Palestinian wines, well supplied to Levantine cities, as we have seen, were scarcely exported to the West (finds of the possibly north Palestinian Kingsholm 117 in Rome are an important exception, as we have seen, if they carried wine). Major Palestinian wine exports did not occur until the fifth century, alongside renewed east Cilician exports, now in the form of LRA 1.³⁵

Whereas Beirut and northern Egypt were well connected to the supply of east Cilician wine, carried in late Pompeii 5 (Pliny’s ‘Laodicean’ amphorae?),³⁶ these are notably absent at Brindisi. They certainly never reached Butrint, Benghazi, or Lepcis Magna. Though Athens imported the Pompeii 5 in the first century and first half of the second century, by the early third century the supply may have ended, there being no examples published from third-century deposits in Knossos either. The eastern market may have been restricted to Beirut and Egypt. In the case of Rome, there is, however, now evidence for the supply of late Pompeii 5 in fair numbers in a context of the 270s,³⁷ difficult to

³² Context 1: 6 Rims, Bases and Handles (RBH) of total 129 imports. Since the presentation of this paper in 2009 and the publication of Reynolds (2010a; b), a very important sequence of deposits from Lepcis Magna has been published (Bonifay and Capelli 2013) and I have added comments here as appropriate: Context 1, c.250–60; Context 2, c.290–310; Context 3, c.350–60; Context 4, c.400. In Context 1 there were a total of 165 amphora diagnostics (rims, bases, handles) (Bonifay and Capelli 2013: 135, table I: I am not including amphora lids). There were no Crimean or Sinopean amphorae. These figures include local amphorae, whereas the Beirut or Butrint percentages are based on imports only.

³³ Auriemma and Quiri (2004).

³⁴ Panella (1986).

³⁵ Reynolds (2005; 2010a: 82–4, 86).

³⁶ Tomber (1998).

³⁷ Coletti and Lorenzetti (2010: fig. 5.2, NMT 9).

explain given their apparent absence in Athens, Crete, and Brindisi (but these may be residual, see below).

Butrint shared the supply of Cretan wine heading for southern Italy (Brindisi) and southern Gaul (Lyons, early third century, at 11.5 per cent).³⁸ These amphorae were not noted at Trieste and are rare in Beirut at all times.³⁹ In Libya, Cretan wine was exported to Benghazi from the first to mid-third centuries, when it peaked. In Lepcis Magna, however, it is very rare by c.250–60.⁴⁰ The rise at Benghazi can be contrasted with the apparent fall in exports to Ostia by the mid-third century. This is paralleled by the drop in numbers of west Cilician ‘pinched handle’ Agora G 199 at Ostia.

A comment here needs to be made about the recent publication of amphorae from the excavations of the Nuovo Mercato Testaccio.⁴¹ The amphorae from the latest levels dated to the 270s (with some late Roman material) appear to contradict the arguments presented here with respect to the supply of Cretan and Cilician imports to Rome and Ostia already outlined. Cretan amphorae are exceptionally common in the late phase, roughly equal to the numbers encountered in the previous phase (AD 110–40). Although the latest material has been dated to the 270s, on good grounds, with reference to the construction of the Aurelian Wall, the range of eastern amphorae suggests to me that the material is actually early third-century in date (rather than mid-third-century). The residuality of a large percentage of the western amphorae is clear and is recognized by the authors. Furthermore, the range of certain common eastern forms in the latest phase corresponds to the Beirut early third-century phase and not to that of the mid-third century: in contrast to the relative abundance of ‘late Pompeii 5’ (already noted), there are no examples of proto-LRA 1, common in mid-third-century Beirut. The authors would surely have illustrated them; Agora M 54 is very common, this being absent in mid-third-century Beirut. An early date is also suggested by the large numbers of late Rhodians/Camulodunum 184, attested only as late as the early third century in Beirut. If this interpretation is correct, then it can be said that the break in the supply of Cretan wine (and east Cilician Pompeii 5s) occurred not in the early third century, but in the mid-third century, correlating with the evidence from Ostia. Furthermore, the suggested early third-century supply of Cilician late Pompeii 5 to Rome links the capital, Beirut, and Alexandria, and not

³⁸ Butrint: Reynolds, Hernandez, and Çondi (2008). I am here including as Cretan and from the eastern end of the island, the third-/fourth-century form ‘Zemer 57’ (Zemer 1977). Lyons: Lemaître (2000).

³⁹ The figures for Cretan amphorae published in Reynolds (2010b: 111, as many as twenty diagnostics, 3.06%, in the case of the BEY 045 Imperial Baths *piscina* fill) need to be revised, as most are actually Knidian amphorae (these have almost identical handles and reddish fabric with fine lime to some typical Cretan amphorae).

⁴⁰ 3 RBH, of total 165 amphora RBH.

⁴¹ Coletti and Lorenzetti (2010).

Athens, which suggests that the Rome connection may be related to the *annona* shipments from Alexandria (which thus appear to end by the mid-third century).

Butrint was always bypassed by the Black Sea trade, except for the Kapitän 2 amphorae (if indeed Black Sea and not Aegean). It would seem significant that Kapitän 2, Crimean, and Sinopean amphorae are absent in Trieste.⁴² Their more southern, east–west trajectory is clear.

Butrint does capture the primarily Adriatic supply of Aegean, particularly Phocean, cooking wares and Eastern Sigillata B finewares. Shipwrecks along the Adriatic coast bear witness to the heavy traffic of all these products (Fig. 12.12).⁴³ These wares also passed through Crete and reached Benghazi, similarly during the second to mid-third centuries.⁴⁴ Unlike Beirut, Phocean cooking wares exported to the Adriatic and beyond (for example, Marseilles) comprised not just frying pans and baking dishes, but an additional range of cooking pots and kettles (in the form of trilobe-rimmed jugs). Phocean cooking wares were notably now not supplied to Beirut by c.200, ending a supply that had run unbroken since the early second century BC. These were now focused on Athens, Crete, Benghazi, Butrint, and Brindisi.

Butrint, despite the regular supply of Aegean–Asia Minor cooking wares, as well as Ephesian one-handed amphora Riley MRA 3/Agora M 125 (both are common in the mid-third century), received only token imports of Asia Minor Dressel 24, certainly in comparison to Beirut and Brindisi. Dressel 24 at Trieste, as high as 52 per cent of a late-second- to third-century assemblage, is far more common than at Brindisi:⁴⁵ were these carrying eastern oil, like the examples found on Monte Testaccio in Rome?⁴⁶

In summary, the supply of eastern exports is complex (Fig. 12.13). Over the early to mid-third century, new forms for wine appear in southern Phoenicia, and there is an increase in regional economies with respect to Levantine production and increased trade between Levantine ports, as well as a shift in the supply of east Cilician goods to Egypt. Late Pompeii 5, in contrast perhaps to Athens, Crete, Brindisi, and Benghazi, reached Rome in quantity in the early third century, perhaps connected with the *annona* shipments from Alexandria, but then the supply to Rome ended. Western, Aegean, and Black Sea (notably Sinopean) imports to Beirut drop in range and quantity in the mid-third century. In the early third century Levantine dried fruit but not wine was exported to the West and to the Danube. Dried fruit (from Akko?) carried in

⁴² Auriemma and Quiri (2004). ⁴³ Jurišić (2000).

⁴⁴ Sackett (1992); Riley (1979: 245, 253–6, ERCW 6, graph on fig. 50: figures for the mid third-century drop in Benghazi). They did not appear, however, in the c.250–60 Lepcis Magna deposit studied by Bonifay.

⁴⁵ Auriemma and Quiri (2004).

⁴⁶ Usually classified as a wine amphora, examples of Dressel 24 at the Monte Testaccio, Rome, would presumably have carried oil: Marimon Ribas and Puig Palerm (2007: 351–2); Remesal Rodríguez and García Sánchez (2007: 178–9, *dipinti* 530, 533). For this type, see Opaît (2007).

the small August 47 amphora may have shifted from western markets to Beirut in the mid-third century. By the mid-third century the supply of Cretan wine had shifted from Rome to a south-eastern Mediterranean circuit. In contrast to the wide range of Black Sea amphorae supplied to Athens, Crete, Brindisi, and Beirut, Sinopean and Crimean fish amphorae were not supplied to the capital. Rome's supply of both Kapitän 1 and 2 was unusual and continued into the fourth century. The marketing of Phocian cooking wares to Beirut ended sometime in the late second century, whereas exports to the Adriatic continued, perhaps increased, in the early to mid-third century, but they may have dropped in Benghazi/Lepcis Magna over the same period.

Mid third-century Western exports to the East

In the mid-third century Iberian amphorae travelled east to Knossos, Corinth, Athens, and Beirut, but bypassed Butrint. As we have seen, there is an overall drop in the supply and range of western amphorae to Beirut in the mid-third century, with only Baetican fish and possibly wine reaching the port in this phase.⁴⁷

Campanian Dressel 2–4 wine amphorae, as well as late Pompeian Red Ware dishes, are not uncommon in mid-third-century contexts at Butrint. They may represent the first stage of an eastern route that included examples of AD 253, at the military bridgehead of Zeugma on the Euphrates.⁴⁸ Because they had travelled that far, their absence in Beirut in the mid-third century is all the more striking, not only because of the proximity to Antioch, but also given the regular supply of Pompeian Red Ware to Beirut and Paphos in the first half of the second century. I have suggested that these late Campanian exports in Zeugma may be connected with the military supply of Dressel 20 amphorae also present in the same phase. The Antioch supply (in all goods) is of course here crucial but, with the exception of the table wares to some degree, remains a complete unknown.

In conclusion, to what extent did the Severan dynasty and the mid to late 'third-century crisis' or 'crises' in both central government and inflation affect the economy and level of trade through the third century across the Mediterranean? It is clear that, far from being a period of decline and disaster as far as trade across the Empire was concerned, the early and, to some extent, the mid-third century was a period of major economic interaction between the Mediterranean provinces. There was, nevertheless, first a trend towards greater close regional supply in the mid-third century and by the late third century

⁴⁷ Reynolds (2010a: table 4b).

⁴⁸ Reynolds (2013).

what appears to be a general period of stagnation that lasted until the mid-fourth century.

Though private individuals/merchants lay behind the distribution of the majority of what were private goods across the Mediterranean, it is possible that the distribution of Pompeii 5 to Rome in the early third century was connected with their redistribution from Alexandria on ships carrying *annona* grain to the capital. In the early and especially mid-third century, the degree to which African wheat accompanied ARS on ships (of various possible origins, perhaps also carrying Spanish amphorae, perhaps via Rome, for example) is a relevant, but complex, problem.

There are various ways to interpret the eastern supply of ARS, which occurs without Tunisian amphorae in this period (not so in the mid-fourth to early fifth centuries). Bonifay and Tchernia (2012) have opted for its redistribution from Ostia on the returning grain ships, but this, if on Alexandrian ships as they suggest, implies that the ARS was offloaded and then onloaded in Ostia: not only impractical and an unnecessary expense, but also presumably liable to import and export taxes for the same items. This would not be the case if the grain was picked up with the ARS in Tunisia, with various ships being possible carriers (Spanish, Tunisian, Alexandrian returning from Rome, north Levantine, and so on), but the rarity of Tunisian amphorae in Beirut, for example, dictates that these ships could not take on Tunisian amphorae, because their primary cargo was African grain.

The military reforms and reorganization of the provinces under Septimius Severus, where many provinces were subdivided and the army was radically restructured (army reforms continuing under Gallienus and Aurelian), formed the basis of Diocletian's administrative, military, and provincial reorganization, including taxation and the management of resources, almost a century later. Though Diocletian, with the Tetrarchy and further provincial divisions, effectively split the Empire and created the Byzantine East (*Oriens*), one could argue that the increased provincial subdivisions were in recognition of existing regional economies that evolved and developed their own self contained dynamics by the mid-third century.⁴⁹

The late third to early fourth centuries: building trends and contexts

There is a characteristic lack or rarity of ceramic assemblages of the late-third and early fourth centuries in Mediterranean ports, in both the East and the West, and this includes Ephesus, Beirut, Butrint, Ostia, Tarragona, Arles,

⁴⁹ Though there is, of course, a huge literature on these themes; for a general guide to these developments, see Jones (1964).

Benghazi, and Carthage, for example. One finds instead many large, often well-preserved deposits of the mid-third century, then a break in the ceramic sequence. This may be due to several factors:

- Though nigh impossible to demonstrate archaeologically, except circumstantially, the cumulative effects of civil strife, inflation, and general insecurity that marked the Roman Empire during the mid-third to early fourth centuries may be the root cause of the lack of private investment, and thus of building and associated pottery fills in levelling layers, in the major cities.
- Specific cases of seismic activity or deliberate destruction in the mid-third century generated substantial ceramic deposits, after which rebuilding was slow. The AD 262 earthquake of Ephesus is well documented historically and archaeologically: though it would be convenient to assign the building gap in Butrint, Beirut, Benghazi or Knossos, to similar disasters, there is as yet, I believe, no such evidence;⁵⁰ the destructive attacks of the Sasanians in Zeugma (253) and the Herulians in Athens (267) certainly, however, left their traces and subsequent decades of stagnation until the Tetrarchic period.
- The collection and recycling of waste, including pottery, in urban centres broke down in the decades after *c.* AD 270.
- For the fourth century, there were a number of major earthquakes that may account for some of the rebuilding in the mid-fourth century: both Benghazi and Lepcis Magna were seriously affected by an earthquake in the 360s, perhaps related to those that struck Epirus in 358, Greece in 361–2, and Kourion (Cyprus) and Crete in 365. There was a later tsunami recorded in Epirus sometime between AD 375 and 382. There is good archaeological evidence for a mid-fourth-century earthquake that tilted the level of the forum in Butrint and probably led to serious, continuous water-level problems across the site and the Vrina Plain through the fourth to sixth centuries.⁵¹ The Kourion earthquake of 365 may account for the extensive mid-fourth-century rebuilding in Beirut.

The rarity of ceramic deposits for the late third to early fourth centuries would seem to reflect a lack of private urban building during this period: a sign

⁵⁰ For some of these deposits, see Reynolds, Bonifay, and Cau (2011: 16–17). In the case of Butrint, a large mid-third-century deposit of ceramics, which, with a headless second-century statue, was used deliberately to fill an alley alongside the ‘Tripartite building’ of the Roman forum, has now been fully catalogued and demonstrates that the pottery does not consist of complete vessels, e.g. clearance after such an earthquake, but a mix of largely complete and half vessels to small fragments: in other words, ‘normal’ refuse. However, it is possible that this act was part of a general attempt to change and raise the access level to the ‘Tripartite Building’ (prior to the fourth-century earthquake that tilted the forum pavement).

⁵¹ For seismic activities in Butrint, see Bescoby (2013: 25–9).

of the times. This is not to say there was a break in long-distance imports or the production of local pottery, as the forms of the mid fourth century including Beirut amphorae, and continued: related variants/successors of the mid third-century local amphorae and cooking wares appear in mid fourth-century contexts and there are, in any case a few small deposits which should date to the late third or early fourth century.⁵² Major construction was perhaps generally limited to major public projects. In Rome, for example, we have the Baths of Diocletian, the basilica of Maxentius and the Arch of Constantine. We should expect similar projects in the East during the Tetrarchic period. Athens and perhaps Corinth provide some of these rare Tetrarchic contexts. We should expect them too at the major administrative capitals of Antioch, Alexandria, and Constantinople.

The fourth to mid-fifth centuries: ceramics

We do have one important context of *c.* AD 300, from the Palatine in Rome.⁵³ The drop in quantity and range of eastern imports that seems already to have been a feature of Ostia as early as the mid-third century, is equally evident in this early fourth-century deposit.⁵⁴ Kapitän 1 (7.9 per cent), Kapitän 2 (5.6 per cent), Ephesian MRA 3 (2.8 per cent), and Crétoise 1 (3.3 per cent) represent the eastern imports.⁵⁵ Levantine products are absent. There is, in contrast, a marked rise in Sicilian, Suburbicarian, and Tunisian amphorae, a trend probably originally connected with Aurelian's demand for low-cost wine for the capital.⁵⁶ There is thus evidence for a significant shift in the sources drawn upon by the early fourth century, even before the foundation of Constantinople as the Imperial capital of the eastern Empire. A significant drop in eastern imports in mid-fourth-century contexts is documented elsewhere in

⁵² These occur especially in the Imperial Baths. The very large, quite isolated fourth-century dump BEY 006 2349 (Area 2) dates somewhere in the mid-fourth century, perhaps a little earlier than two sequences of mid-fourth-century houses from Area 3 (the *domus*) and Area 2 West (the shops and *portico*). See Perring (2003) and Reynolds (2006), CP 14a, which perhaps should be second quarter of the fourth century. There were no useful coins.

⁵³ Peña (1999); Reynolds (2010a: table 2c).

⁵⁴ Panella (1986); Reynolds (2010a: table 2c).

⁵⁵ Peña (1999). Of a total of at least 198 amphorae, at least 21 were considered to be residual (p. 71), leaving 177 contemporary pieces. Kapitän 1 comprised 'at least 14 examples' (7.9%), Kapitän 2, 'at least 10 examples' (5.6%), LRA 3 ('at least 5 examples'), Cretan amphorae comprised six contemporary (3.3%) and two residual examples (not listed in the 'residual' 21 pieces, pp. 81–2).

⁵⁶ Examples of the Tunisian amphora Keay 25, introduced and often found in wrecks of this period, though usually associated with fish products, is now known also to have carried wine: Bonifay and Garnier (2007), who suggest that this came about as a result of this new 'market' in Rome. This is a case also argued for the Mauretanian Keay 1 amphora (Reynolds 2010a: 50–1).

Rome, as well as Vienne and Arles.⁵⁷ The recently published fairly large context from Lepcis Magna of the same period documents a major rise in Kapitän 1 and especially Kapitän 2 amphorae, with notably very few Cretan amphorae, a pattern that may reflect that of Rome.⁵⁸ In this respect, the continued supply of Kapitän 2 to Athens and Corinth (but not to Butrint or Nicopolis–Actium) during the fourth and even into the fifth centuries could mark the route of these shipments to Rome.

Turning to another theme, does the distribution of pottery in the fourth century reflect the administrative blocs that were to become by the mid-fourth century the major praetorian prefectures and their corresponding supply systems? It is possibly so. In the case of the western Empire, the archaeological evidence seems to illustrate the bipartite division of the *annona* supply under the two *praefectures* of the Gauls, to which Spain belonged, and that of Italy, Africa, and Illyricum.⁵⁹

The increase in Tunisian goods (oil, fish, and wine, as well as table and cooking wares) through the fourth century, already specifically targeted, by c. AD 300, as we have seen, is illustrated both in Rome and at Ostia.⁶⁰ As Roman Africa took over the oil supply, it was the exports of Spanish fish, not oil, that reached the western capital from the mid-fourth to mid-fifth centuries.⁶¹ Both Milan and Aquileia, important redistribution centres, were targeted primarily by Tunisian goods. This is especially significant in the case of Aquileia, as the port had been a prime importer of Baetican oil and fish in the early Imperial period. Perhaps nearby Trieste's exceptional supply of Asia Minor Dressel 24 in the early third century reflects the need to find additional eastern oil already in the early Severan period.

In contrast, the supply of Spanish oil to Arles but apparently not to Tarragona in the mid- to late fourth century underscores the direct links between Baetica and southern Gaul. The high figures for Baetican oil at Narbonne and Arles in the early fifth century would indicate that this trend may have continued, and it is likely that some major centres such as Lyons,

⁵⁷ Reynolds (2010a: 82–3, tables 6b, 18, n. 124).

⁵⁸ Bonifay and Capelli (2013: 117–18, 138, table II): Kapitän 1, 17 RBH, Kapitän 2, 120 RBH, of a total of 1,156 amphora RBH. Cretan amphorae comprise only 10 RBH.

⁵⁹ Reynolds (2010a: 32–9, 77, 145).

⁶⁰ Cf. Fulford (1987).

⁶¹ Rome: Reynolds (2010a: 33–5, table 2c). See now Carboni (2010), for an early fifth-century deposit from the Domus Tiberiana, where Tunisian amphorae dominate and there are very few Iberian amphorae; Bertoldi and Pacetti (2010), where Tunisian amphorae make up 41.4% of a mid-fifth-century deposit of the Basilica Hilariana (Caelian Hill), with Italian, primarily Calabrian Keay 52, at 25.7%, and Iberian at 6.9% (Lusitanian fish: 5.8%; Baetican Dressel 23 oil amphorae, only 1.1%). However, the quantity of Spanish amphorae (134, 18.8%), including a fair number of Dressel 23/Keay 13A-C variants in a context of the second half of the fifth century in the Temple of Magna Mater, even if residual, are much higher than one would expect (41% of the Iberian amphorae, the rest being fish amphorae from Baetica and Lusitania) (Panella, Sagui, and Coletti 2010: 65–7).

Trier, and Cologne received Baetican oil through these ports.⁶² At Arles in various contexts of the mid-fourth to early fifth centuries, African amphorae carried oil (Tunisian and Tripolitanian), fish (Tunisian), and wine (Tunisian, Mauretanian), though, as at Lyons, Baetican, rather than African, oil would appear to dominate.⁶³

Other former military markets in the northern provinces, however, bear witness to a major drop in supplies of Baetican oil by the mid-third century. The army in the northern provinces may no longer have been consumers of olive oil, partly by choice, as the troops were no longer of Mediterranean origin. Instead we find local alternatives such as nut oil being packaged in copies of Dressel 20 when Baetican oil became scarce.⁶⁴

Indeed, the economic division of Gaul into two, northern and southern, halves, reflected in the Diocletianic provinces, is all the more apparent through the supply of Mediterranean imports from the late fourth century onwards.

As always, during the fourth century it was Baetican and Lusitanian fish and Tunisian fish and wine, not western oil, that was exported to the East. Returning cargoes comprised only a restricted range of Aegean–Asia Minor and Black Sea products, and nothing from the Levantine provinces. One wonders quite why exports of Kapitän 1 and 2 to Rome continued: did they accompany other more important cargoes vital to Rome?

In the East, Abadie-Reynal has argued that the supply of close regional finewares and amphorae within the Aegean during the late third to later fourth centuries may have become more marked, a ‘closed system’, with ARS circulating predominantly in the southern Aegean.⁶⁵

Mid-fourth-century levels in Beirut attest to the reappearance of amphorae and ARS from Tunisia, and Spanish and Portuguese fish for the first time since the mid-third century (Fig. 12.15). These Hispanic products seem to be more common in Beirut than they were in contemporary Tarragona or Britain. Though Aegean and Asia Minor imports in Beirut were substantial, Sinopean imports were not resumed until the early fifth century. Black Sea goods were otherwise directed at the army of the Lower Danube.⁶⁶ In notable contrast to the fourth–fifth century Athens–Corinth–Rome supply of Kapitän 2, common in early–mid-third-century Beirut, these end by the fourth.

⁶² Reynolds (2010a: 33–6). For an important early fifth-century assemblage from Lyons, see Batigne Vallet, Lemaître, and Schmitt (2010: esp. 210–11). Here Spanish amphorae make up c.50%, comprising primarily Dr 23 oil amphorae, followed by fish and then wine amphorae. Tunisian amphorae comprise c.33% (Keay 1B: wine?; primarily Keay 25 large ‘*spatheia*’/Bonifay Africaine IIIA-C, all fish and/or wine containers). For contexts in Arles and Lyons, see Duperron (2014).

⁶³ Reynolds (2010a: n. 124 and table 18); Piton (2007).

⁶⁵ Abadie-Reynal (1989: 148–9, and fig. 7).

⁶⁶ Dyczek (2001, 2007); Bjelajac (1996); Opař (1996).

⁶⁴ Reynolds (2010a: 25).

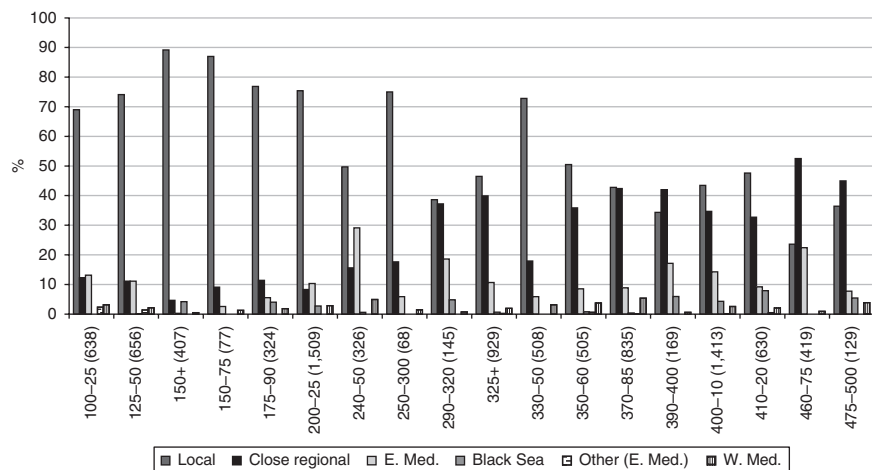


Fig. 12.15. Beirut, percentage of total amphorae, all sources (local versus imported)

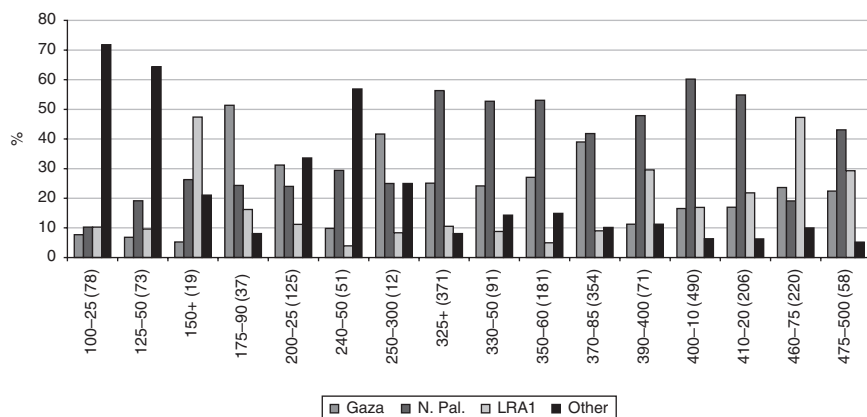


Fig. 12.16. Beirut, relative percentage of close regional amphorae, by source

It can be said that long-distance East–West routes had recommenced, but were more reduced in the range and specific markets served: the Black Sea/Aegean (Constantinople?) perhaps with Rome; Spain/Africa with Beirut. Butrint was out of the picture completely, except for its close regional contacts with Apulia and Crete (Figs 12.8–12.9).

As one would expect, in Beirut the close regional imports of the Levantine provinces were by far the most significant in the mid-fourth century and seem to reflect a new phase of economic investment in the region (Figs 12.15–12.16): the expansion of wine production in the early Byzantine period in Palestine and southern Phoenicia is documented by the plethora of new wine presses and

rise to prominence of Agora M 334.⁶⁷ Gazan wine imports in Beirut increased from 8.5 per cent to over 18 per cent in the mid-fourth century. Construction and trade in these Byzantine cities were booming. By the late fourth century Gazan imports had risen to nearly 30 per cent of all imports in Beirut.⁶⁸ Indeed the late fourth century marks a general increase in trade throughout the Roman world.

From the late fourth and up to the mid-fifth century, there is what can only be described as a revival, a boom in both urban construction and trade across the Roman Mediterranean. ARS reached its maximum distribution. It is now that Gazan amphorae, but still not LRA 5, reached ports such as Marseilles, Arles, and Rome. LRA 5 exports from Alexandria and Caesarea did not begin until the late fifth century, part of the eastern exploitation of the western Mediterranean market that one sees from the late fifth to early sixth centuries, prior to the Byzantine reconquest.

The real peak in the range of imports in Beirut was in the early fifth century. Cypriot LRD and Asia Minor LRC finewares now take on an important role for the first time. However, I should not exaggerate Beirut's connections with the West. As we have seen, in the early fifth century, 93 per cent of the imported amphorae were from eastern Mediterranean sources, with 46.4 per cent being Levantine (68.67 per cent, with Beirut products included: Figs 12.8–9 and 12.15).⁶⁹

CONCLUSIONS: BYZANTINE SUPPLY NETWORKS AND THE EAST

In conclusion, it has been argued by some⁷⁰ that production and exports of LRA 1 and Palestinian amphorae were a response to the foundation of Constantinople and the new market this created (see Figs 12.8 and 12.9). That the Byzantine period, from the mid-fourth century, marked an increase in Levantine agricultural production after a long period of stagnation is clear, but this was primarily to serve its close regional markets. Nor was this a purely Byzantine phenomenon. It continued a process of investment and development in the Levantine provinces that was already a feature of the early second century and became increasingly more marked over the early to later Severan period. However, by the mid-third century, the range of amphora forms and products exported from eastern Cilicia were reduced to one, the proto-LRA 1. Gone were the large-bodied fruit amphorae.

⁶⁷ For those in Palestine: Kingsley (2000: fig. 102). The principal fourth-century south Phoenician amphorae associated with the Byzantine presses were Agora M 334, Reynolds AM 14, and LRA 5.

⁶⁸ Reynolds (2010a: table 9b).

⁶⁹ Reynolds (2010a: table 15).

⁷⁰ Decker (2000); Kingsley and Decker (2000b).

These Levantine cities, their territories, economies, and patchwork of city or regional amphora forms, were the economic cells that were already in place before Diocletian moved to assess them and put them into more manageable order: in the case of the Levantine textile industry, he took firm control of it in order to supply the state's needs.⁷¹

The graphs in Figs 12.15–12.16 indicate nevertheless that, with regard to Beirut, the marked increase in imported versus local goods dates to the early or mid-fourth century—that is, to the early Byzantine period. But by far the most important products supplied to Beirut were those of Phoenicia itself. Cilician LRA 1 imports were still low at this point, certainly not the levels encountered in the early and mid-third century or later, in the early fifth century.

It might be worth investigating whether the mid-, rather than the later fourth-century recovery and rebuilding in Beirut, also evident at Antioch and Caesarea, associated with an increase in agricultural output and trade throughout the coastal provinces of Byzantine *Oriens*, pre-date domestic urban renewal in the western Mediterranean by a generation. If there was an additional catalyst for investment in the Levant in the fourth century, this would have been Antioch, rather than Constantinople. Even though free grain distribution was instituted in Constantinople in AD 332, as Cyril Mango has stated, Constantinople was not yet the metropolis and administrative capital of the eastern Empire it was to become in the fifth and sixth centuries.⁷² When the Theodosian Code was being compiled, much of the fourth-century and earlier documentation was not to be found at Constantinople. It was probably still in Antioch. Similarly, fifth-century deposits in Alexandria indicate that the city was a major, if not the primary, market for Gazan wine. This was probably also the case in the fourth century.

Beyond the orbit of the coastal Levantine cities, inland Syria as far as the Euphrates was another matter. The cities and army derived their supplies from the oil, wine, and wheat of the villages of the interior, as they did their cooking wares, which were produced in several major centres,⁷³ with moderate quantities of Cilician and Cypriot LRA 1 making up the rest, but perhaps not until the later fifth century. We need data from Antioch itself to gauge the supply of local and imported goods from the fourth century onwards. Contrary to what is believed, it is the local pale Syrian amphorae, not LRA 1, that are associated with the oil presses of the villages of the Limestone Massif east of Antioch.⁷⁴

It is true that LRA 1 exports to the Danube and Black Sea forts appear from the late fourth century,⁷⁵ but throughout the fifth and sixth centuries exports of LRA 1 were on a massive scale, not just in Constantinople and ports

⁷¹ Reynolds (2010a: n. 306). ⁷² Mango (2005).

⁷³ Schneider et al. (2007); Vokaer (2011).

⁷⁴ Reynolds (2005: 566).

⁷⁵ Sazanov (1997; 2007: 803–4).

throughout the Roman world such as Marseilles, Naples and Carthage, but reaching rural sites also.⁷⁶ The scale of the output and distribution of LRA 1 is, in the case of Levantine exports, unprecedented. Early Imperial exports of Pompeii 5 certainly did not match this. They resemble the scale of exports of Roman Africa in the same period. The bulk of this trade, including that of Roman Africa, was surely not state-driven but was due to private and to some degree also Church initiatives.⁷⁷

That LRA 1 and rarer Palestinian amphorae reached the Danube as part of an *annona* supply system, along with Aegean LRA 2, is also clear.⁷⁸ In the storeroom at the fort of Dichin in the 480s, LRA 1 comprised one-quarter of the finds and LRA 2 one-half.⁷⁹ Recent finds in Kos demonstrate how the island's products 'in the second half of the sixth and early seventh century' were also packaged in locally produced LRA 2/LRA 13 and imitations of LRA 1.⁸⁰ Both forms bear the stamps of the state *kommerkiarioi* who were in charge of the quality control of goods sent to the capital. At least two of these stamped Koan LRA 13 amphorae formed part of the early seventh-century Yassı Ada cargo of LRA 1 and LRA 13, dated to after AD 625/6.⁸¹ The extent to which the ex-Cilician/Cypriot production of LRA 1 in Kos, as well as that in Rhodes and, recently identified, in Paros, was already active, established in 536 by the *quaestor exercitus*, or was due to the necessary changes in the supply system that came about after the Levantine provinces fell to the Persians and then the Arabs over the years 610–34, needs to be examined, given the late dating of examples so far.⁸²

Butrint, in Epirus, part of the eastern Empire, may well have belonged to this network also, but only in the second half of the sixth century, being supplied with Cilician/Cypriot LRA 1 and a plethora of sources of LRA 2, those of Chios, Kos, and possibly Crete or the southern Peloponnese being dominant (Fig. 12.11).⁸³ Koper, in the praetorian prefecture of Illyricum, was, in contrast, umbilically linked to Carthage in its Byzantine phase and was supplied with Tunisian, rather than eastern, goods.⁸⁴ When the Vandals were

⁷⁶ Reynolds (2010a: see Index).

⁷⁷ For important ongoing work on the reading and interpretation of *dipinti* on LRA 1, see Fournet and Pieri (2008).

⁷⁸ Karagiorgou (2000).

⁷⁹ Swan (2004; 2007).

⁸⁰ Diamanti (2010).

⁸¹ Bass and Van Doorninck (1982).

⁸² Reynolds (2010a: 153, nn. 272, 275). For Aegean production of LRA 1, see Empereur and Picon (1989) (Rhodes) and Diamanti, Kouzeli, and Petridis (2014).

⁸³ Reynolds (2004): e.g. contexts 1152 and 1676; Reynolds (2010a: table 25); Reynolds (2010b), where a Cretan origin was suggested for very common small variants. A much wider source of LRA 2, including these, is found in Nicopolis-Actium (Reynolds and Pavlidis 2014). In a recent paper presented at the International Conference on Amphorae and their Contents held in Cádiz (November 2015), I proposed that some of these small 'Cretan' LRA 1 were from Messene or the south Peloponnese.

⁸⁴ Cunja (1996).

in power in Africa, Tunisian exports complemented eastern imports at Butrint, probably tapping the supply to Ravenna. With the Byzantine reconquest, however, Tunisian goods dropped in number, and eastern products, including LRC, again became dominant, a sign perhaps that the former state-controlled distribution systems of the East and West were reimposed.

In fact, Butrint, and Dyrrachium/Durres to the north, had a very special, so far unique, connection with the Aegean from the early fifth to late sixth centuries, importing a wide range of amphorae from Samos, Ikaria, Phocaea (perhaps), and Ephesus that are unattested elsewhere, except Nicopolis–Actium (Fig. 12.17).⁸⁵ Only a few of these products reached the West, and in small numbers.⁸⁶ Significantly the supply of these Aegean goods to Butrint did not encourage that of Black Sea products. The Black Sea was geared to supply its own close regional markets and those of the army in the lower Danube with a wide range of goods.

From AD 450 to 550 only pale Sinope amphorae reached Beirut, whereas they were supplied to Antioch and Zeugma till the early seventh century (Figs 12.10–12.11; Fig. 12.18b–e, for the typical reduced range of amphora forms in Beirut in AD 551).⁸⁷ These amphorae perhaps returned on ships that had been sent to the Black Sea or perhaps just to Constantinople, laden with *annona* cargoes from Antioch of wheat, LRA 1, and redistributed Palestinian amphorae. Significantly, the regionally intermediate amphora products of the Aegean, those reaching Butrint in quantity, were not picked up and distributed to Beirut, only the Phocean LRC fine ware (e.g. Fig. 12.18a).⁸⁸ The two networks of the Black Sea and the Aegean were operating independently.

Beirut in the late sixth-/early seventh century also received ARS and Egyptian Red Slip ware in quantity, but no amphorae from Africa or Egypt, in marked contrast to the Umayyad period, when Beirut received large numbers of Egyptian amphorae as well as fine wares (Fig. 12.18f–z).⁸⁹ Did all these late sixth-/early seventh-century fine wares travel with grain cargoes from Carthage, Alexandria, and Ephesus to Beirut, which was in a state of recovery after the AD 551 earthquake?⁹⁰

In short, with the Byzantine reconquest, the state distribution systems of East and West were even more defined, Byzantine Carthage supplying its troops and the administration in the West, in southern Spain and Ravenna,

⁸⁵ Reynolds (2010b); Reynolds and Pavlidis (2014). They are accompanied by ARS, not LRC. This is probably due to the fact that LRC was only rarely exported westwards after c.550. Its most westerly distribution in the East was to Corinth and Cyrenaica (notably Tocra).

⁸⁶ e.g. Arthur (1998); Pieri (2005: 133–6; LRA 8/Samian).

⁸⁷ Reynolds (2010a: table 24; 2010b; 2013).

⁸⁸ This explains why LRC, and Sinopean ‘argile claire’ and ‘carrot’ amphorae, were found in what I interpret as a warehouse, not a LRA 1 production site, at Seleucia, the port of Antioch (Reynolds 2005: 566, with reference to Empereur and Picon 1989).

⁸⁹ Reynolds (2003).

⁹⁰ See Hall (2004: 70–6) for ancient references to this event.

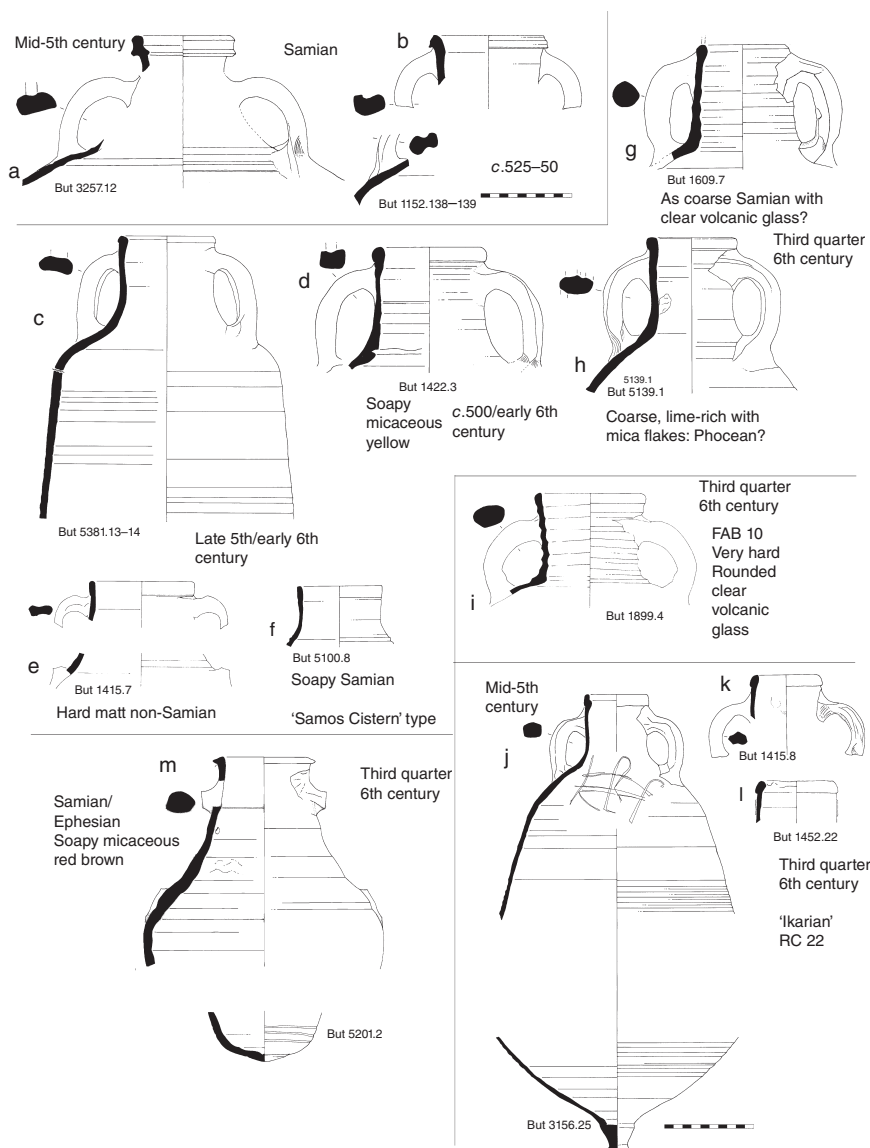
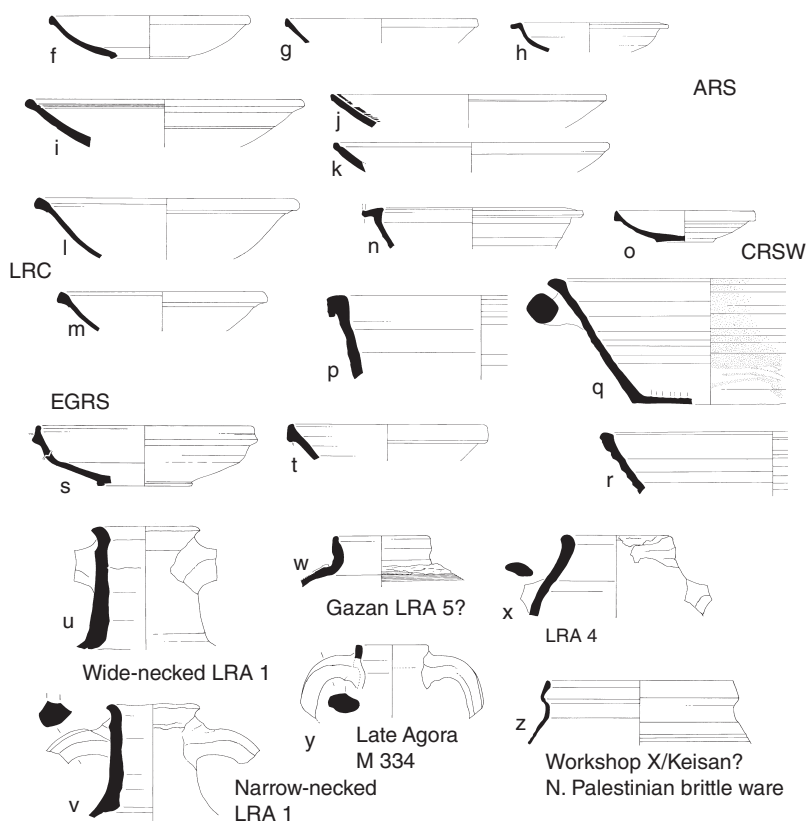
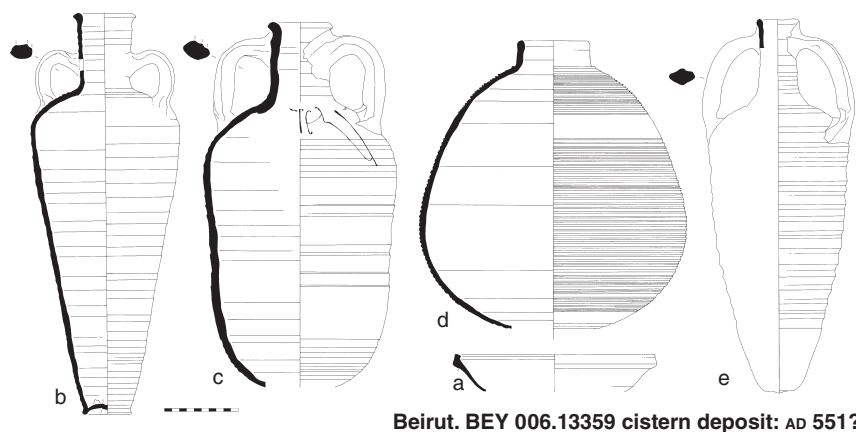


Fig. 12.17. Butrint, Samian and related forms, fifth to sixth centuries AD



Beirut. BEY 006 5503: late sixth-/early seventh-century

Fig. 12.18. Beirut, typical forms in AD 551 (BEY 006.13359) and late sixth-/early seventh-century (BEY 006.5503) assemblages

for example, as well as supplying grain to Constantinople, distributing other African goods, en route through the Aegean.⁹¹ As we have seen, the East also had its own complex state-organized supply networks drawing on the goods of specific eastern provinces. In the background it would appear that the regional economic blocs of the Roman East were, from the mid-fifth century onwards, otherwise increasingly self-sufficient through close regional exchange.⁹² The need for grain may have been a major factor connecting far distant ports, whether commandeered by the state or by the cities themselves. To this we must also add the activities of the Church in the sale or redistribution of its goods, including Palestinian and Egyptian wine (for example, to Rome, Marseilles, and Tarragona in the seventh century), the latter exports shifting to more close regional markets, such as Beirut, in the eighth century.

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⁹¹ Bonifay (2005).

⁹² For trends in imports versus local goods at Alexandria, see Majcherek (2004).

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Prices and Costs in the Textile Industry in the Light of the Lead Tags from Siscia

Ivan Radman-Livaja

INTRODUCTION: THE LEAD TAGS FROM SISCIA

The Roman Department of the Zagreb Archaeological Museum contains close to 1,200 inscribed lead tags. The number itself is quite impressive, but the importance of that collection is even greater when one takes into account the fact that all those lead tags were found on the same site, the modern town of Sisak, the ancient city of Siscia, one of the biggest Roman agglomerations in the region and the largest urban centre in south-western Pannonia.¹

The collection had not been systematically studied until very recently, but it was nevertheless not unknown to ancient historians and archaeologists, since it had been mentioned in several publications dealing with the objects of that type.²

Some of those tags were offered or sold to the Museum by individual finders or collectors, but most of them were found during the dredging of the Kupa River before the First World War. Since the dredging was localized in the very centre of the town—that is, in front of the port quarter—it would seem that all the tags come from a rather limited area, where, according to the excavations of the 1980s, the port facilities of the Roman town were also situated. The Museum curator in charge at that time, Dr Josip Brunšmid, made a complete inventory and started the research work, which he was unfortunately unable to finish.

¹ Mócsy (1974: 22–3, 112–14, 273); Šašel (1974: 702–41); Hoti (1992: 133–53); Lolić (2003: 131–52).

² Brunšmid (1901: 124–5); Mócsy (1956: 97–104); Šašel (1974: 729); Fitz (1980: 325); Frei-Stolba (1984: 134–5); Römer-Martijnse (1990: 232–33; 1996–1997: 5); Hoti (1992: 144); Feugère (1993: 304); Schwinden (1993: 216); Paci (1995: 33); Bassi (1996: 207, 216); Košćević (2000: 96); Lovenjak (2005: 43); Radman-Livaja (2007: 153–9).



Fig. 13.1. Lead tags from Siscia (see chapter appendix for catalogue descriptions)
(drawing: Miljenka Galić; copyright: Zagreb Archaeological Museum)

I was given that assignment in 2004, as my Ph.D. thesis, concluded in 2009, and published as a monograph in 2014.³ This chapter does not try to offer a complete overview of those tags and their inscriptions, but rather to draw out the more important conclusions of what the lead tags might tell us about commercial transactions. Nevertheless, a short introductory explanation is necessary before we can proceed to a more thorough presentation of the prices indicated in those inscriptions. All those tags are small lead tablets, of a more or less rectangular shape, pierced with a hole (sometimes even two or three perforations) so that the tag could be attached to the merchandise with a small piece of string or a metal wire.

They all carry an inscription, sometimes only on one side, but usually on both sides (Figs 13.1–13.4). Those inscriptions are always written in capital

³ Radman-Livaja (2009; 2014).



Fig. 13.2. Lead tags from Siscia (see chapter appendix for catalogue descriptions)
(drawing: Miljenka Galić; copyright: Zagreb Archaeological Museum)



Fig. 13.3. Lead tags from Siscia (see chapter appendix for catalogue descriptions)
(drawing: Miljenka Galić; copyright: Zagreb Archaeological Museum)

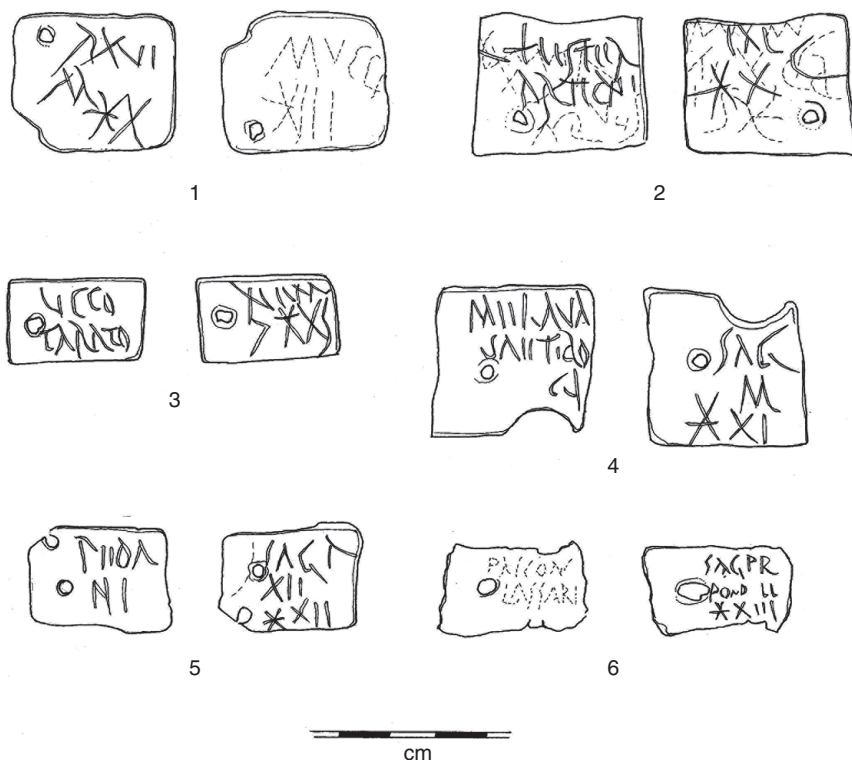


Fig. 13.4. Lead tags from Siscia (see chapter appendix for catalogue descriptions)

(drawing: Miljenka Galić; copyright: Zagreb Archaeological Museum)

letters or the older Roman cursive, sometimes even in a mixture of both, but not a single tag seems to be inscribed in the new Roman cursive, a detail that has its importance as far as dating is considered.⁴ Most of the tags were reused several times, and thus one can often see traces of older inscriptions, more or less thoroughly erased by the scribe. For this reason, it is often difficult to distinguish with certainty which inscription is the most recent one. Obviously, when one finds traces of many different inscriptions, the reading becomes rather uncertain.

Those inscriptions generally follow the same model: on one side, one can read personal names, *duo nomina* (far more rarely *tria nomina*) as well as single names, often followed by a patronymic. It would thus seem that both citizens and peregrines are mentioned on those tags, and in some cases even slaves.⁵ It is interesting to point out that there is no significant disproportion between male and female persons among more than 900 individuals

⁴ Radman-Livaja (2014: 52–62).

⁵ Radman-Livaja (2014: 130–6).

mentioned on those tags. Males are more numerous, but females are nevertheless mentioned on almost 40% of the tags.⁶ The other side of the tag usually carries an inscription mentioning the merchandise, most of the time in an abbreviated form, as well as a price and quite often an indication of quantity or weight.⁷

Despite the fact that the reading of the personal names can be quite dubious owing to several factors, chiefly the poor state of preservation of some tags, and mistakes made by the scribe, it is usually far less subject to doubt than the interpretation of the abbreviations. Fortunately, the words appearing on the tags are not always abbreviated, which is of great help, as some of the abbreviations are difficult to interpret.

There are many different abbreviations on those tags, and, although many different commercial industrial activities could be considered possible, there is no doubt that most of them are linked to the wool trade and the textile industry. Words such as *LANA*, *PAN(N)UM*, *TVNICA*, *SAGVM*, *P(A)ENVLA*, *PAL(L)A*, *PALLIOLUM*, *LODIX*, *BANATA*, and *ABOLLA* appear more or less regularly without being abbreviated, and thus the interpretation of common abbreviations such as *L*, *LA*, *LAN*, *PAN*, *T*, *SAG*, *PAENV*, *PAL*, *LO*, *LOD*, *LODI*, *BANA*, and *AB* is not in doubt.

Those words, abbreviated or not, rarely appear alone in the inscriptions, since they are usually followed by other abbreviations, which mostly seem to refer to the dimensions and colours of those textile products. Adjectives of colour are very common, and many different shades appear in the inscriptions (*caeruleus*, *caesius*, *callainus*, *candidus*, *coccineus*, *ferrugineus*, *galbinus*, *gilvus*, *haematinus*, *myrteolus*, *piperinus*, *pullus*, *purpureus*, as well as some terms that are probably related to the colour of the fabrics and garments such as *corticeus*, *pavoninus*, or *pictus*).

THE PRICE NOTATIONS ON THE TAGS

Taking into consideration the topic of this publication, I will limit my chapter to only one aspect of those inscriptions—that is, the amounts of money indicated on the Siscia tags.

The prices on those tags are a major argument when one considers those lead tags as commercial tags. Those prices must have indicated either the value of the goods or the cost of a given service such as cleaning, fulling, or dyeing, and they must have been essential information on the tags, since they appear on 81 per cent

⁶ Radman-Livaja (2014: 136–7).

⁷ Radman-Livaja (2014: 63–98).

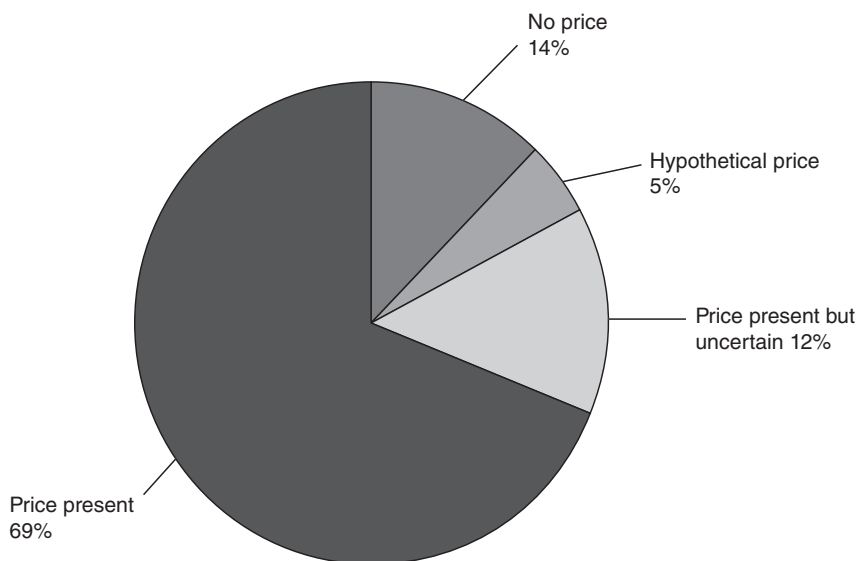


Fig.13.5. Proportions of tags with and without prices

of them (Fig. 13.5).⁸ Actually, only 14 per cent of tags contain no indication whatsoever about the cost. The remaining 5 per cent concern three categories of tags: those whose surface is so damaged and erased that the reading of the inscription is too doubtful to affirm that there is (or that there is not) a price indication, some tags where an X could be either a number or the sign for a *denarius*, and, finally, fragmentary tags that might have also contained a price indication.

It must be pointed out that these statistics concern only the most recent inscriptions on the tags. Actually, many tags contain also the traces of older, more or less readable inscriptions, and sometimes, prices are also visible. Those prices will be discussed later, but as far as general data are concerned I will merely mention their number in different categories.

Those prices can be divided into the following categories:

- Inscriptions without prices: 162 (one or more prices nevertheless present in the older inscriptions: 47 cases).
- Inscriptions with hypothetical prices: 58.
- Despite some uncertainties, the presence of the price is not in doubt: 131.
- The price is present and there are no uncertainties as far as reading is concerned: 770.
- Two prices present in the same inscription: 2 (2 and 6 *denarii*, 7 and 10 *denarii*).

⁸ For arguments why those tags seem to have been used in local textile production or refurbishment services, especially by fullers and dyers, and not, for example, as labels for long-distance trade and custom duties, cf. Radman-Livaja (2009: 119–33; 2014: 99–117).

All the prices, with perhaps a few exceptions, are expressed in *denarii* or fractions of the *denarius*. Indeed, they all start with X, the sign for the *denarius*,⁹ and it would thus seem that the *denarius* was the unit of account in that type of trade in Siscia. The only possible exceptions are the inscriptions on the tags cat. 23.23 (where a common abbreviation, *R III*, is followed by an uncommon abbreviation *AS N V*), cat. 01.77 (where the abbreviation *A N VIII* follows a personal name, *Flavius Albanus*), and cat. 08.28, where one sees the abbreviation *A N VI* in an older inscription. We could perhaps interpret those abbreviations as *as(ses) n(ummos) quinque*, *a(sses) n(ummos) octo* and *a(sses) n(ummos) sex*. If this reading is correct, we would have prices of 5, 6, and 8 *asses*, which were not expressed as a *denarius* fraction as on other tags.¹⁰

The sign of the *denarius* is followed on the Siscia tags by numerals and numeric signs representing fractions. While integers are easy to interpret (for example Fig. 13.1.5), the fractions are not always easy to solve. The most common numeric sign is the letter S (Fig. 13.1.1, 13.1.7), obviously, the *s(emis)*. Considering the context, this sign is certainly a fraction of the *denarius*—that is, a half of the *denarius* (the equivalent of 8 *asses* or 2 *sestertii*) and not the small copper coin (half of the *as*).¹¹

Another common fraction appearing in the prices inscribed on the tags from Siscia seems to be the *quadrans* (Fig. 13.1.2, 13.1.6). Indeed, many prices include a sign composed of three horizontal superimposed dashes, the middle one being usually placed a bit more to the right (=–). This is a numeric sign that represents one quarter— $\frac{1}{4}$ (*quadrans*)¹²—and, just like the *s(emis)*, it is probably a fraction of a *denarius*—that is, a *sestertius* or 4 *asses*—and not a coin ($\frac{1}{4}$ of an *as*). Thus, S=– would be $\frac{3}{4}$ of a *denarius*. For example, an abbreviation like X S =– should probably be translated as *denarii semissem quadrantem*, the equivalent of 3 *sestertii* (or 12 *asses*); X I =– could be *denarium unum quadrantem* or 1 *denarius* and 1 *sesterce*; X II S =– would be the equivalent of 2 *denarii* and 3 *sestertii* (*denarios duos semissem quadrantem*); and so on.¹³

Things become more complicated with lower fractions, but an ancient source, not very often quoted although edited in the nineteenth century, the

⁹ *L. Volusii Maeciani assis distributio et Balbi Mensoris de asse libellus*, emendavit Eduardus Böcking, Bonnæ (1831), 45–62; Hultsch (1866: pp. xxix, 18–19, 66–8; 1882: 286); Richardson (2004: 47).

¹⁰ The tag cat. 23.40 contains the abbreviation *P R I A N V CIIR* as well as a price of 0.5 *denarius*. Could *AN V* be a price related to the abbreviation *P R I*—*a(sses) n(ummos) quinque*—while 0.5 *denarius* would be related to the abbreviation *CIIR* (probably the adjective *caeruleus*)? This is far from being certain, since *PRIANV* could also be a personal name.

¹¹ *Volusii Maeciani distributio*, 1, 55; Hultsch (1866: xxvi. 19, 62, 68–70; 1882: 148); Cagnat (1914a: 33); Sutz (1920: 58); Sutherland and Carson (1984: 23); Richardson (2004: 21); Depeyrot (2006: 32–4); Frei-Stolba (2012: 320).

¹² *Volusii Maeciani distributio*, 3, 51; Hultsch (1866: xxvii. 62, 67; 1882: 148); Cagnat (1914a: 33); Sutz (1920: 58); Sutherland and Carson (1984: 3); Richardson (2004: 21); Depeyrot (2006: 32–4); Wedenig (2013: 244–5).

¹³ The value was probably expressed as an accusative; cf. Adams (1995: 116); Bowman and Thomas (2003: 15–16); cf. the corresponding tablets.

Distributio item vocabula ac notae partium in rebus quae constant pondere numero mensura, written by the jurist and politician L. Volusius Maecianus in the middle of the second century AD,¹⁴ could give us some important clues about the numeric signs representing the fractions of a *denarius*. One sign we encounter quite often on the Siscia price tags, almost always at the end of the inscription, is a stylized L crossed with a dash in the middle, reminding us of the pound sterling sign, no doubt familiar to most people, the £ (Fig. 13.1.3, 13.1.4, 13.1.8). This numeric sign is not unknown in Roman inscriptions, and it is usually interpreted, depending on the context, as either a sign for the *sestertius*¹⁵ or the sign for a *semuncia*—that is, half an ounce or 1/24 of a pound (in these cases it is not always crossed with a dash).¹⁶ Unfortunately, none of those interpretations seems satisfying in this particular case. A. Mócsy had already noticed this sign on the Siscia tags kept in the National Museum in Budapest, and, without discussing the details, he simply interpreted it as a *sestertius* sign.¹⁷ However, those same inscriptions also contained the *denarius* sign. If the *sestertius* had been the unit of account, why mention the *denarius*, and vice versa? Did the scribe wish to emphasize the fact that the amount could be paid in *denarii* as well as in *sestertii*? Such information would be superfluous, since every inhabitant of the Empire was familiar with the monetary system in place and was perfectly aware of the value of different types of coins. As a matter of fact, many prices containing the sign £ are less than 1 *denarius*, thus requiring anyway a payment in copper alloy coins.

Does the sign £ represent a weight measure, a half of an ounce (*semuncia*)—that is, 1/24 of a pound or approximately 13.5 grams? Indeed, such a sign appears on several graffiti on the Palatine, and it is always used in inscriptions that clearly refer to weights and not to prices.¹⁸

Since many Siscia tags seem to be related to the work of dyers, could this sign combined with a price indicate the amount to pay for half an ounce of dye? This hypothesis is very unlikely: if the value of the dyes had been estimated on the basis of half an ounce, we would have exorbitant prices, since certain dyeing techniques require dozens of kilograms of dye. According to some recipes, up to 3 kilograms of vegetal dye could be needed in order to dye just 1 kg of wool.¹⁹ If we multiply all the sums of money attested on the tags by a

¹⁴ *Volusii Maeciani distributio*; Th. Mommsen, *Volusii Maeciani Distributio partium*, Abhandlungen der Philologisch-Historischen Klasse der Königl. Sächsischen Gesellschaft der Wissenschaften, 3 (1853; 1857: 279–95); Hultsch's edition is based on Mommsen's edition; cf. Hultsch (1866: 17–22, 61–71); Mommsen (1887: 596–614); Sutz (1920: 53–6); Cuomo (2007: 206–28); Frei-Stolba (2012: 320–3).

¹⁵ Cagnat (1914a: 34); cf. Darmon (1964: 6, 8).

¹⁶ Hultsch (1866: xxvii–xxviii. 128 (*Tabula codicis Bernensis*, 14), 130 (*Tabula codicis Gudiani*, 22); Cagnat (1914a: 33).

¹⁷ Mócsy (1956: 102, cat. 3, 7, 14).

¹⁸ Väänänen (1970: 95, 193, cat. 183, 245, cat. 306, 246, cat. 307).

¹⁹ Forbes (1956: 136); Roche-Bernard (1993: 113); Uscatescu (1994: 109–10).

semi-ounce, in order to obtain more appropriate weights of dyeing matter, dyeing a cloak or a tunic would have cost several hundred or sometimes even several thousand *denarii*. We have no reason to believe that the *infectores* and *offectores* in Siscia used expensive dyes like the murex, for example (actually, even the real purple dye might not have been that expensive, since the average price in the first two centuries AD probably did not exceed 100 *denarii* per pound and could often be far lower, although much higher prices have also been attested, probably depending on the quality and origin of the dye).²⁰ In any case, when weights are indicated on the Siscia tags, they are always expressed in pounds, and the only fraction occasionally related to weights is the *s(emis)*.

Therefore, the £ sign on the Siscia tags would most likely be a fraction of the *denarius*, but its exact value is, however, not certain. Since it is a fraction that is always placed after the signs *S(emis)* and =-, it is probably a fraction inferior to $\frac{1}{4}$ of a *denarius*. One must bear in mind that those prices represent a set amount that had to be paid in coins. Indeed, why should one indicate fractions that would not correspond to real coins? If $\frac{1}{4}$ of a *denarius* corresponds to 1 *sestertius*, to what coin could the sign £ correspond? The choice is admittedly rather limited: it could either be a *dupondius* or an *as*. Of course, there were also coins that were fractions of the *as*, the small copper coins—that is, the *semis* and the *quadrans*—but I doubt that such low value coins would have been used in this context. Could we interpret the £ as the *dupondius*?

Obviously, it would not be illogical to see a *dupondius* following a *sestertius* in a price, but this is not really a serious argument. The *sescuncia* or $\frac{1}{8}$ of an *as* (an *as* as a measurement unit, not a coin) is often represented as a stylized L or the Greek letter S with a dash on the right (sometimes also on the left).²¹ If this dash crosses the middle of the letter L, we obtain a £. The *sescuncia* or $\frac{1}{8}$ of a *denarius* corresponds exactly to one *dupondius*. As a matter of fact, T. Mommsen uses the sign £ in his edition of Volusius Maecianus' text in order to represent the *sescuncia*. According to Volusius Maecianus, *dupundium hac nota scribas ac voces: sescuncia X Σ- (or X £), nam sedecim sescunciae dupundium efficiunt* ('you may write the *dupundium* [i.e. the sum of two *asses*, in money or weight] with this sign, X Σ [or X £] and call it as well a *sescuncia* [one-and-a-half twelfths, i.e. an eighth], for sixteen *secunciae* make a *dupundium*').²² It would thus seem that the sign £ on Siscia tags could indeed represent the *dupondius*. The words of Volusius Maecianus are a strong argument in favour of this hypothesis, but can we automatically exclude the possibility that this sign could have represented an *as*? If we think of the reform of 91 BC (or 89 BC), more precisely the *lex Papiria*, when the weight of

²⁰ Mrozek (1980: 236–7).

²¹ Hultsch (1866: xxvii; 1882: 148); Cagnat (1914a: 33); Sutz (1920: 58); Maher and Makowski (2001: 390, 397).

²² *Volusii Maeciani distributio*, 49.

the *as*—that is, the coin—was reduced to half an ounce,²³ we can ask ourselves if the sign of the *semuncia* could have been used to represent that coin? We must admit that a rather long time span separates the reform of 91 BC and the start of textile production in Siscia, even if we consider that the first *fullonicae* and *tinctoriae* were already active in that town during the Augustan period (which is, by the way, quite likely).

I am quite certain that the sign £ on Siscia tags represents a fraction of the *denarius*, either a *dupondius* (a hypothesis I am more inclined to believe) or an *as*, but one must remain cautious before drawing a definite conclusion.

Some other fractions appear occasionally on the tags, but they are all very rare and some of them are actually quite dubious. The sign = can be seen on three tags (cat. 12.39 (Fig. 13.2.1), cat. 12.12, cat. 23.63). It is usually the sign of the *sextans*,²⁴ but in this context it is difficult to tell to what would correspond 1/6 of a *denarius*. However, the same sign is attested on a tablet from Vindolanda, where it most probably represents an *octans*—that is, 2 *asses*. It is interesting to remark that the prices on the tablets of Vindolanda seem also to use signs for the *quadrans* and the *as* that are not to be seen on the tags from Siscia.²⁵ We can assume, since we have no other analogies, that the sign = is also an *octans* on the tags from Siscia. This sign would thus correspond to a *dupondius* (or 2 *asses*),²⁶ but would this mean that the £ sign could therefore be an *as*? I am not convinced. I would be more inclined to see this as a parallel notation system—incidentally, far less common on the Siscia tags. One cannot exclude that another sign for the *dupondius* had been used on the tag cat. 18.15 (Fig. 13.2.2), looking more or less like a letter Z,²⁷ a sign usually representing a *sextans*.²⁸ A sign looking like a > can be seen on the tag cat. 07.08 (Fig. 13.2.3). Since this sign is placed at the end, after the £, could it be an *as* or perhaps even a fraction of the *as* like the *semis* or the *quadrans*? According to Volusius Maecianus, a price like X £ > might indeed be an *as*.²⁹

²³ Crawford (1974: 75–8, 596, 610–11); Melville Jones (1990: 159–60, 284); Richardson (2004: 46); Depeyrot (2006: 23).

²⁴ Volusii Maeciani distributio, 4; Hultsch (1866: xxvii. 62; 1882: 148); Cagnat (1914a: 33).

²⁵ Bowman and Thomas (1994: 54–5, 131–4, cat. 182; 2003: 15, 54); Frei-Stolba (2012: 316–21).

²⁶ Cf. Hultsch (1866: xxx. 121 (*Ex Isidori etymologiarum libris, De signis ponderum*, xxvi. 4)).

²⁷ cf. Hultsch (1866: xxx. 133 (*Tabula codicis Mutinensis alterius*, 4)).

²⁸ Hultsch (1866: xx, xxvii. 127 (*Tabula codicis Bernensis*), 130 (*Tabula codicis Gudiani*), 131 (*Tabula codicis Mutinensis prioris*)).

²⁹ Volusii Maeciani distributio, 48 (Hultsch 1866: 67): *Infra quam divisionem sequitur alia quaedam subdivisio, notas aequae et propria vocabula habens. Quare si ad denarium rationem conficias, assem hac nota scribas ac voces: semuncia sicilicus X Σ ∩; semunciae enim sedecim et sicilici sedecim assem efficiunt* ('Beneath that division follows another division, which has its own signs and names. Hence, if you make a calculation in proportion to a denarius, you may write the *as* with this sign and call it likewise: *semuncia sicilicus* X Σ ∩; for sixteen *semunciae* [a *semuncia* is one twenty-fourth of anything] and sixteen *sicilici* [a *sicilicus* is a quarter of an uncia, i.e. 1/48 of an *as*] make an *as*'); cf. Sutz (1920: 58); Frei-Stolba (2012: 322).

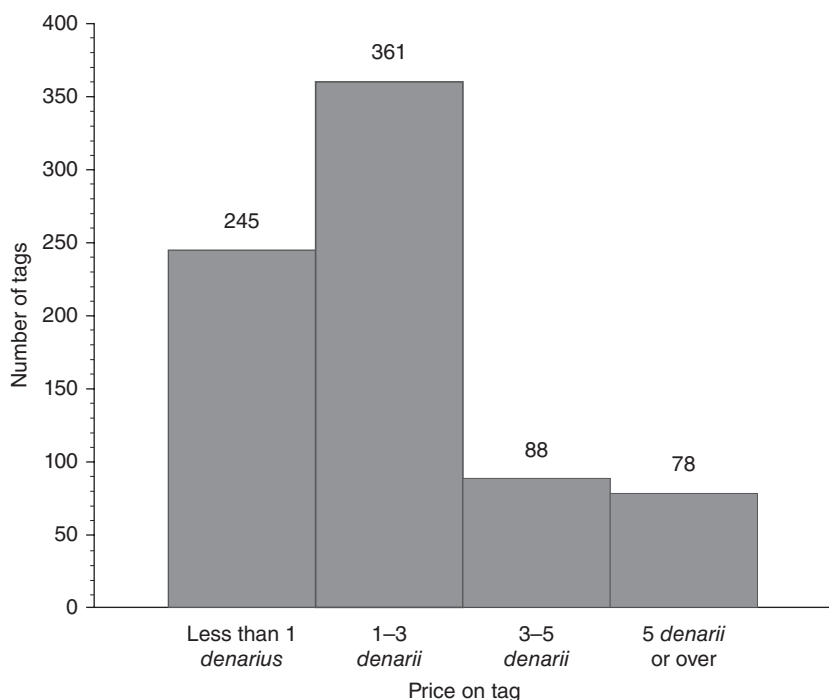


Fig. 13.6. Price levels on tags

Another example of alternative notation could be a price like $\text{X S} == \text{£}$ (Fig. 13.2.4), representing perhaps 14 *asses* (3 *sestertii* and 1 *dupondius*).³⁰ A price such as $\text{X} == \text{£}$ (cat. 09.02.) could be interpreted as 6 *asses*.³¹

Another price, $\text{X V S} -$ (Fig. 13.2.5) is difficult to explain, since the semis sign is followed just by a single *libella*.³² Could this price correspond to an amount of 5 *denarii* and 9 *asses*?

Despite those exceptions or aberrations, it would seem that the tags bear a coherent notation system of prices and that the smallest coin type in regular use was probably the *dupondius*, while the *as* was only seldom used (Figs 13.6 and 13.7).

³⁰ Cat. 01.01 (cf. cat. 01.06); *Volusii Maeciani distributio*, 61 (Hultsch 1866: 68): *Quattuordeciaere hac nota scribas ac voces: dextans semuncia X S == £; dextantes semunciaequae sedecim aequae quattuordeciaere efficiunt*. ('You may write fourteen-sixteenths with this sign and call it likewise: dextans semuncia X S == £; sixteen dextantes [i.e. five-sixths of an *as*] and sixteen semunciae make fourteen-sixteenths'); cf. Sutz (1920: 58).

³¹ *Volusii Maeciani distributio*, 53 (Hultsch 1866: 67): *Sexis hac nota scribas nominesque: triens semuncia X = = £; aequae enim trientes et semunciae sedecies ducti sexis efficiunt*; cf. Sutz (1920: 58).

³² Cat. 01.69; cf. the older inscription on cat. 17.11 ($\text{X ii S} -$); Bowman and Thomas (2003: 54, no. 596).

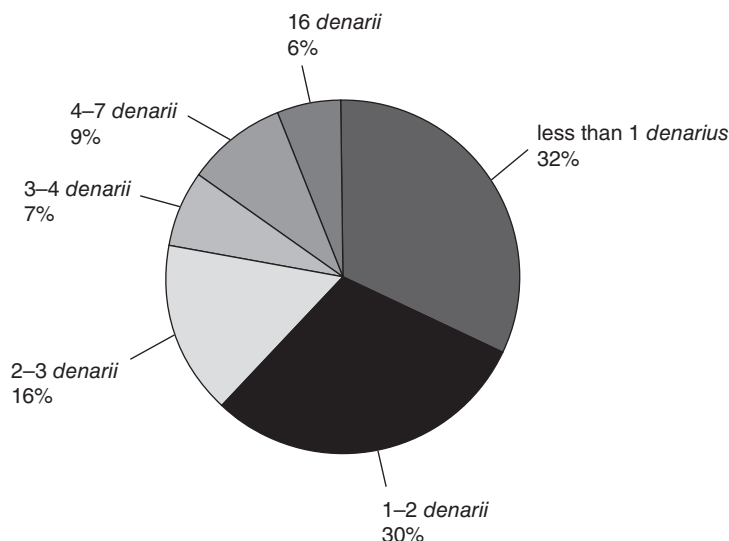


Fig. 13.7. Proportions of the original inscriptions giving different price ranges

As we can see from Table 13.1, 78 per cent of the prices on the tags³³ are less than 3 *denarii* and only 6 per cent are equal to or higher than 7 *denarii* (Figs 13.2 and 13.3).

Many inscriptions contain prices whose reading is somewhat uncertain, and they have not been included in these statistics. Nevertheless, even if some doubts persist, we can see that they seem to correspond well to the prices whose reading is beyond doubt. The most likely reading of those uncertain prices is given in Table 13.2.³⁴

Since their reading is not absolutely certain, we cannot use those prices as relevant statistical data, but we can nevertheless conclude that prices lower than 3 *denarii* are by far the most numerous.

As far as prices in the older still visible inscriptions are concerned, they also seem to correspond well to the prices already presented. We can distinguish the price of the older inscription in at least 283 tags (Table 13.3).³⁵ The low prices, less than 2 *denarii*, are the most common, but prices between 2 and

³³ The prices visible in the older inscriptions are not included in these statistics.

³⁴ In several cases, more than one price is visible on the tags but it is impossible to distinguish which price would be the most recent one.

³⁵ It must be pointed out that some tags keep the traces of several inscriptions and that we can find up to three different price indications on some of them. At least 290 price indications are still more or less visible.

Table 13.1. Distribution of prices on the lead tags from Siscia (including only those prices where the reading is certain)

Symbol	Presumed reading	Amount	Fraction of a denarius	Number
X £	<i>denarii sescunciam</i>	1 <i>dupondius</i> ?	1/8	5
X =-	<i>denarii quadrantem</i>	1 <i>sestertius</i>	1/4	24
X =- £	<i>denarii quadrantem sescunciam</i>	1 <i>sestertius</i> and 1 <i>dupondius</i> ?	3/8	27
X =- £ >	<i>denarii quadrantem assem ?</i>	1 <i>sestertius</i> and 1 <i>as</i> ?	5/16	1
X S	<i>denarii semissem</i>	2 <i>sestertii</i>	1/2	73
X S £	<i>denarii semissem sescunciam</i>	2 <i>sestertii</i> and 1 <i>dupondius</i> ?	5/8	28
X S =-	<i>denarii semissem quadrantem</i>	3 <i>sestertii</i>	3/4	68
X S =- £	<i>denarii semissem quadrantem sescunciam</i>	3 <i>sestertii</i> and 1 <i>dupondius</i> ?	7/8	18
X S == £	<i>denarii dextantem semunciam ?</i>	14 <i>asses</i> ?	7/8	1
X I	<i>denarium unum</i>	1 <i>denarius</i>	1	83
X I £	<i>denarium unum sescunciam</i>	1 <i>denarius</i> and 1 <i>dupondius</i> ?	1 1/8	15
X I z	<i>denarium unum dupondium ?</i>	1 <i>denarius</i> and 1 <i>dupondius</i> ?	1 1/8	1
X I =-	<i>denarium unum quadrantem</i>	1 <i>denarius</i> and 1 <i>sestertius</i>	1 1/4	31
X I =- £	<i>denarium unum quadrantem sescunciam</i>	1 <i>denarius</i> , 1 <i>sestertius</i> , and 1 <i>dupondius</i> ?	1 3/8	5
X I S	<i>denarium unum semissem</i>	1 <i>denarius</i> and 2 <i>sestertii</i>	1 1/2	59
X I S £	<i>denarium unum semissem sescunciam</i>	1 <i>denarius</i> , 2 <i>sestertii</i> , and 1 <i>dupondius</i> ?	1 5/8	7
X I S =	<i>denarium unum semissem octantem</i>	1 <i>denarius</i> , 2 <i>sestertii</i> , and 1 <i>dupondius</i> ?	1 5/8	1
X I S =-	<i>denarium unum semissem quadrantem</i>	1 <i>denarius</i> and 3 <i>sestertii</i>	1 3/4	31
X I S =- £	<i>denarium unum semissem quadrantem sescunciam</i>	1 <i>denarius</i> , 3 <i>sestertii</i> , and 1 <i>dupondius</i> ?	1 7/8	3
X II	<i>denarios duos</i>	2 <i>denarii</i>	2	63
X II £	<i>denarios duos sescunciam</i>	2 <i>denarii</i> and 1 <i>dupondius</i> ?	2 1/8	1
X II =	<i>denarios duos octantem ?</i>	2 <i>denarii</i> and 1 <i>dupondius</i> ?	2 1/8	1
X II =-	<i>denarios duos quadrantem</i>	2 <i>denarii</i> and 1 <i>sestertius</i>	2 1/4	19
X II =- £	<i>denarios duos quadrantem sescunciam</i>	2 <i>denarii</i> , 1 <i>sestertius</i> , and 1 <i>dupondius</i> ?	2 3/8	2
X II S	<i>denarios duos semissem</i>	2 <i>denarii</i> and 2 <i>sestertii</i>	2 1/2	25
X II S £	<i>denarios duos semissem sescunciam</i>	2 <i>denarii</i> , 2 <i>sestertii</i> , and 1 <i>dupondius</i> ?	2 5/8	5
X II S =-	<i>denarios duos semissem quadrantem</i>	2 <i>denarii</i> and 3 <i>sestertii</i>	2 3/4	10

(continued)

Table 13.1. Continued

Symbol	Presumed reading	Amount	Fraction of a denarius	Number
X II S =- £	<i>denarios duos semissem quadrantem sescunciam</i>	2 <i>denarii</i> , 3 <i>sestertii</i> , and 1 <i>dupondius</i> ?	2 7/8	1
X III	<i>denarios tres</i>	3 <i>denarii</i>	3	34
X III £	<i>denarios tres sescunciam</i>	3 <i>denarii</i> and 1 <i>dupondius</i> ?	3 1/8	1
X III =-	<i>denarios tres quadrantem</i>	3 <i>denarii</i> and 1 <i>sestertius</i>	3 1/4	4
X III =- £	<i>denarios tres quadrantem sescunciam</i>	3 <i>denarii</i> , 1 <i>sestertius</i> , and 1 <i>dupondius</i> ?	3 3/8	1
X III S	<i>denarios tres semissem</i>	3 <i>denarii</i> and 2 <i>sestertii</i>	3 1/2	12
X III S =-	<i>denarios tres semissem quadrantem</i>	3 <i>denarii</i> and 3 <i>sestertii</i>	3 3/4	5
X IIII	<i>denarios quattuor</i>	4 <i>denarii</i>	4	18
X IIII =-	<i>denarios quattuor quadrantem</i>	4 <i>denarii</i> and 1 <i>sestertius</i>	4 1/4	2
X IIII S	<i>denarios quattuor semissem</i>	4 <i>denarii</i> and 2 <i>sestertii</i>	4 1/2	9
X IIII S =-	<i>denarios quattuor semissem quadrantem</i>	4 <i>denarii</i> and 3 <i>sestertii</i>	4 3/4	2
X V	<i>denarios quinque</i>	5 <i>denarii</i>	5	10
X V =-	<i>denarios quinque quadrantem</i>	5 <i>denarii</i> and 1 <i>sestertius</i>	5 1/4	1
X V S	<i>denarios quinque semissem</i>	5 <i>denarii</i> and 2 <i>sestertii</i>	5 1/2	1
X V S -	<i>denarios quinque semissem assem ?</i>	5 <i>denarii</i> , 2 <i>sestertii</i> , and 1 <i>as</i> ?	5 9/16	1
X V S £	<i>denarios quinque semissem sescunciam</i>	5 <i>denarii</i> , 2 <i>sestertii</i> , and 1 <i>dupondius</i> ?	5 5/8	1
X VI	<i>denarios sex</i>	6 <i>denarii</i>	6	14
X VI S	<i>denarios sex semissem</i>	6 <i>denarii</i> and 2 <i>sestertii</i>	6 1/2	7
X VII	<i>denarios septem</i>	7 <i>denarii</i>	7	9
X VII S	<i>denarios septem semissem</i>	7 <i>denarii</i> and 2 <i>sestertii</i>	7 1/2	4
X VII S =-	<i>denarios septem semissem quadrantem</i>	7 <i>denarii</i> and 3 <i>sestertii</i>	7 3/4	1
X VIII	<i>denarios octo</i>	8 <i>denarii</i>	8	11
X VIII S	<i>denarios octo semissem</i>	8 <i>denarii</i> and 2 <i>sestertii</i>	8 1/2	1
X IX	<i>denarios novem</i>	9 <i>denarii</i>	9	1
X IX S	<i>denarios novem semissem</i>	9 <i>denarii</i> and 2 <i>sestertii</i>	9 1/2	1
X X	<i>denarios decem</i>	10 <i>denarii</i>	10	4
X X S	<i>denarios decem semissem</i>	10 <i>denarii</i> and 2 <i>sestertii</i>	10 1/2	1
X XI	<i>denarios undecim</i>	11 <i>denarii</i>	11	3
X XI S	<i>denarios undecim semissem</i>	11 <i>denarii</i> and 2 <i>sestertii</i>	11 1/2	1
X XII	<i>denarios duodecim</i>	12 <i>denarii</i>	12	3
X XIII	<i>denarios tredecim</i>	13 <i>denarii</i>	13	2
X XVI	<i>denarios sedecim</i>	16 <i>denarii</i>	16	1

Table 13.2. Probable interpretation of prices where the reading is uncertain

Symbol	Amount	Number
X £	1 <i>dupondius</i> ?	2
X =-	1 <i>sestertius</i>	2
X =- £	1 <i>sestertius</i> and 1 <i>dupondius</i> ?	2
X = = £	6 <i>asses</i>	1
X S	2 <i>sestertii</i>	17
X S £	2 <i>sestertii</i> and 1 <i>dupondius</i> ?	2
X S =-	3 <i>sestertii</i>	6
X S =- £	3 <i>sestertii</i> and 1 <i>dupondius</i> ?	3
X S = = £	14 <i>asses</i> ?	1
X I	1 <i>denarius</i>	9
X I £	1 <i>denarius</i> and 1 <i>dupondius</i> ?	2
X I =-	1 <i>denarius</i> and 1 <i>sestertius</i>	4
X I =- £	1 <i>denarius</i> , 1 <i>sestertius</i> , and 1 <i>dupondius</i> ?	2
X I S	1 <i>denarius</i> and 2 <i>sestertii</i>	9
X I S £	1 <i>denarius</i> , 2 <i>sestertii</i> , and 1 <i>dupondius</i> ?	1
X I S =-	1 <i>denarius</i> and 3 <i>sestertii</i>	6
X I S =- £	1 <i>denarius</i> , 3 <i>sestertii</i> , and 1 <i>dupondius</i> ?	1
X II	2 <i>denarii</i>	5
X II £	2 <i>denarii</i> and 1 <i>dupondius</i> ?	1
X II =-	2 <i>denarii</i> and 1 <i>sestertius</i>	3
X II S	2 <i>denarii</i> and 2 <i>sestertii</i>	7
X II S =-	2 <i>denarii</i> and 3 <i>sestertii</i>	2
X III	3 <i>denarii</i>	6
X III =	3 <i>denarii</i> and 1 <i>dupondius</i> ?	1
X III =-	3 <i>denarii</i> and 1 <i>sestertius</i>	1
X III S	3 <i>denarii</i> and 2 <i>sestertii</i>	2
X III S =- £	3 <i>denarii</i> , 3 <i>sestertii</i> , and 1 <i>dupondius</i> ?	1
X IIII	4 <i>denarii</i>	5
X IIII S	4 <i>denarii</i> and 2 <i>sestertii</i>	1
X V	5 <i>denarii</i>	6
X V =-	5 <i>denarii</i> and 1 <i>sestertius</i>	1
X VI	6 <i>denarii</i>	1
X VI =-	6 <i>denarii</i> and 1 <i>sestertius</i>	1
X VII	7 <i>denarii</i>	3
X VIII	8 <i>denarii</i>	1
X IX	9 <i>denarii</i>	1
X X	10 <i>denarii</i>	1
X X S	10 <i>denarii</i> and 2 <i>sestertii</i>	1
X XI S	11 <i>denarii</i> and 2 <i>sestertii</i>	1
X XIII	13 <i>denarii</i>	1

3 *denarii* are not rare either. Only forty-one price indications are higher than 3 *denarii* (some of them are actually quite high, between 10 and 13 *denarii*). Prices of 8 and 6 *asses* might be indicated in older inscriptions appearing on tags cat. 01.77 and 08.28, if we accept the interpretation *a(sses) n(ummos) octo* and *a(sses) n(ummos) sex*.

Table 13.3. Prices in the older inscriptions still legible on the tags

Symbol	Amount	Number
X £	1 <i>dupondius</i> ?	3
X ==	1 <i>sestertius</i>	6
X == £	1 <i>sestertius</i> and 1 <i>dupondius</i> ?	2
X S	2 <i>sestertii</i>	51
X S £	2 <i>sestertii</i> and 1 <i>dupondius</i> ?	8
X S ==	3 <i>sestertii</i>	20
X S == £	3 <i>sestertii</i> and 1 <i>dupondius</i> ?	7
X S = £	14 <i>asses</i> ?	1
X I	1 <i>denarius</i>	26
X I £	1 <i>denarius</i> and 1 <i>dupondius</i> ?	5
X I ==	1 <i>denarius</i> and 1 <i>sestertius</i>	4
X I S	1 <i>denarius</i> and 2 <i>sestertii</i>	18
X I S £	1 <i>denarius</i> , 2 <i>sestertii</i> , and 1 <i>dupondius</i> ?	4
X I S ==	1 <i>denarius</i> and 3 <i>sestertii</i>	7
X I S == £	1 <i>denarius</i> , 3 <i>sestertii</i> , and 1 <i>dupondius</i> ?	3
X II	2 <i>denarii</i>	32
X II £	2 <i>denarii</i> and 1 <i>dupondius</i> ?	3
X II ==	2 <i>denarii</i> and 1 <i>sesterce</i>	4
X II == £	2 <i>denarii</i> , 1 <i>sestertius</i> , and 1 <i>dupondius</i> ?	1
X II S	2 <i>denarii</i> and 2 <i>sestertii</i>	18
X II S -	2 <i>denarii</i> , 2 <i>sestertii</i> , and 1 <i>as</i> ?	1
X II S £	2 <i>denarii</i> , 2 <i>sestertii</i> , and 1 <i>dupondius</i> ?	1
X II S ==	2 <i>denarii</i> and 3 <i>sestertii</i>	6
X III	3 <i>denarii</i>	18
X III £	3 <i>denarii</i> and 1 <i>dupondius</i> ?	1
X III ==	3 <i>denarii</i> and 1 <i>sestertius</i>	2
X III == £	3 <i>denarii</i> , 1 <i>sestertius</i> , and 1 <i>dupondius</i> ?	1
X III S	3 <i>denarii</i> and 2 <i>sestertii</i>	2
X IIII	4 <i>denarii</i>	3
X IIII S	4 <i>denarii</i> and 2 <i>sestertii</i>	6
X V	5 <i>denarii</i>	2
X VI	6 <i>denarii</i>	2
X VI S	6 <i>denarii</i> and 2 <i>sestertii</i>	2
X VI S ==	6 <i>denarii</i> and 3 <i>sestertii</i>	1
X VII	7 <i>denarii</i>	5
X VII S	7 <i>denarii</i> and 2 <i>sestertii</i>	1
X IX	9 <i>denarii</i>	1
X X	10 <i>denarii</i>	6
X X ==	10 <i>denarii</i> and 1 <i>sestertius</i>	1
X XI	11 <i>denarii</i>	1
X XI S	11 <i>denarii</i> and 2 <i>sestertii</i>	1
X XII S ==	12 <i>denarii</i> and 3 <i>sestertii</i>	1
X XIII	13 <i>denarii</i>	2

After this rapid survey, the general conclusion would be that the most common prices on the Siscia tags are far from being high, since they are only occasionally more than 3 *denarii*—actually, over 60 per cent of them are less than 2 *denarii*. Higher prices, those above 10 *denarii*, seem to have been rather an exception than a rule and certainly not typical in the trade those tags have been used for.

PRICES FOR CLOTHES, OR FULLING/DYEING SERVICES?

Do the amounts of money incised on the tags correspond to the average costs of the Roman period for the services of fulling and dyeing, or to the prices of clothes?

One must admit that, as far as those costs and prices are concerned, the sources at our disposal before the Edict of Diocletian give us far more information about the costs and values of building, real estate, or luxury commodities than about the everyday living costs of the average people.³⁶ Ancient writers were more interested in expensive acts of euergetism and impressive *sportulae* and not so much in average salaries. Scandalous expenses, just like nowadays, were certainly of more interest to public opinion than the usual small everyday expenses. Extravagant and unusually large expenses could either improve somebody's reputation or ruin it, and their mention in the written sources or on the epigraphic monuments is therefore quite understandable, just as is the lack of concern in presenting data about the average costs of daily living, familiar to everybody and not interesting at all to the audience of that time. Nevertheless, it would be wrong to assume that such data are completely lacking. Price data are actually not scant, but the evidence is dispersed in time and space and often not easy to access. The authors who made the effort to collect it had to check thoroughly the ancient sources, the papyri and the tablets as well as the graffiti and the epigraphic inscriptions that can also give useful clues about daily costs in the Roman world. The subsistence costs—that is, food costs³⁷—are the best known, but, fortunately for our topic, some prices of clothes as well as wages of textile manufacturers and fullers are also known.

The purple cloaks, costing 10,000 *sestertii*, mentioned by Martial because of their exorbitant value,³⁸ are certainly not to be taken as an average price, since the large majority of the inhabitants of the Empire had to content themselves with far less extravagant and much cheaper clothes. The same author mentions also garments that could be worn by common people, like one red cloak (*lacerna coccina*) costing less than 3 *sestertii* or some poor quality togas costing over 3 *denarii* and over 60 *sestertii* respectively (the exact price is not defined).³⁹ We can thus conclude that by the end of the first century AD the value of an average used cloak in the city of Rome was estimated at less than 3 *sestertii* and that a low-quality toga could be bought for only 12 *sestertii*. It would also seem that even a toga five times that cost was not considered as a

³⁶ Duncan-Jones (1965: 191–232; 1982: 63–155).

³⁷ Szilágyi (1963: 335–45); Duncan-Jones (1982: 144–7); Mrozek (1975: 10–36); Kessler and Temin (2008: 137–59); Rathbone (2009: 303–10).

³⁸ Martial, 4.61, 8.10; Mrozek (1975: 39).

³⁹ Martial, 2.43, 4.26, 9.100.

decent quality item. According to Petronius, several decades earlier, a used cloak dyed with Tyrian purple and in good condition ('washed only once') was estimated at less than 10 *sestertii*, but one must take into account that this amount was estimated by the slave who was at the same time responsible for the loss of that cloak—and that this is satirical fiction.⁴⁰ According to Pliny, a pound of good quality wool could cost up to 100 *sestertii*.⁴¹ One inscription from Germania Superior, as well as the *Digest*, estimates the annual cost for an adult male's clothing at an amount of 20 to 30 *denarii* and 25 *denarii* respectively.⁴² This amount must have been sufficient in the second century AD to buy all the necessary clothes for one person with average revenues, and we can presume that this sum also includes the costs of cleaning and not only the value of new clothing items. A papyrus from Oxyrhynchus (*P. Oxy.* 736, early first century AD) indicates that an amount of 10 drachmas had to be paid for the raw material and the weaving of one *paenula*, while one obol and a half had to be paid to the tailor for the finishing. The whole amount would thus have come to a little more than 10 *sestertii*, and one has to point out the small amount given to the tailor, approximately one *as*. In the same text we can also read that a weaver received one drachma and 2 obols for the weaving of one chiton—that is, a little bit more than 5 *asses*. Since he was also provided with food by the client, who also procured the wool and the weaving instruments, we can reasonably presume that the price of an average chiton would have been usually far more.⁴³ If the prices mentioned by Martial and Petronius need to be considered with some reserve, some less dubious prices are also known. Two graffiti from Pompeii and Herculaneum inform us about the prices of tunics in those towns: a tunic bought in Pompeii cost 15 *sestertii*, while the one from Herculaneum was worth less than 6 *sestertii* (specifically, 1 *denarius* and 7 *asses*).⁴⁴ We can therefore assume that in this part of Italy tunics could usually be obtained for amounts ranging from 1.5 to 4 *denarii* in the years preceding the eruption of 79. A few decades later, the tablets from Vindolanda inform us about the costs of clothing in that part of Britain. For example, one tunic cost 3 *denarii*,⁴⁵ an undisclosed number of *superaria* was worth over 13 *denarii*, one *sudarium* could be bought for 2 *denarii*, and one cloak (*sagacia*) for 5 *denarii* and 6 *asses*.⁴⁶ A price for wool can also be found on one of Vindolanda tablets: 38 pounds of wool (perhaps more) may have cost 9.5 *denarii* (the interpretation of the text is uncertain: the actual price is 12 *denarii* and 9 *asses*, but Bowman and Thomas believe that this could have been the price of 50 pounds of wool).⁴⁷

⁴⁰ Petronius, 30, 7–8; Mrozek (1975: 37).

⁴¹ Pliny, *NH*, 8, 190; Mrozek (1975: 38).

⁴² *CIL* XIII.5708; *D.* 34. 3, 28; Mrozek (1975: 38).

⁴³ Wipszycka (1965: 78, 122).

⁴⁴ *CIL* IV.9108, 10664; Mrozek (1975: 37).

⁴⁵ Bowman and Thomas (1994: 129–30, n. 181).

⁴⁶ Bowman and Thomas (1994: 135–41, n. 184).

⁴⁷ Bowman and Thomas (1994: 159–61, n. 192).

There is also one list of items acquired perhaps for the commanding officer's family. Among other items, this list contains several textile products: 6 cloaks (*infiblatoria*) costing 69 *denarii* (11.5 *denarii* each), 15 *saga corticia* costing over 236 *denarii* (there is a lacuna in the text), a red curtain (*velum coccinium*) costing 54 *denarii* and 10 *asses*, a greenish curtain (*velum viridem*) of 46 *denarii* and 3 *sestertii*, two purple curtains costing 99 *denarii* and 10 *asses*, as well as one curtain of unknown colour costing 55 *denarii* and 2 *asses*.⁴⁸

The customs fees indicated on the tariff of Zarái prompted some authors to believe that a purple *sagum* could have cost 50 *denarii*, a blanket 25 *denarii*, and an *abolla* 75 *denarii*.⁴⁹

This seems quite a lot compared to other known prices, even if we take into consideration that the Zarái inscription is dated to AD 202, i.e. a later period than the prices we have mentioned previously. It is quite unlikely that inflation could have been so high during Septimius Severus' reign, despite the fact that the first signs of the coming major economic and financial crisis must already have been present.⁵⁰ As a matter of fact, such rather high prices are conceivable only if we interpret those customs fees as an *ad valorem* tax (or more precisely as 2 per cent of the value of textile items), but I would be more inclined to share the belief that the tariff of Zarái shows fixed rates, independent of the real value of the items.⁵¹ The cleaning of one tunic in Pompeii cost 1 *denarius*,⁵² while the mending of one cloak in Vipasca in Lusitania cost probably 1.5 *denarii* during Hadrian's reign.⁵³

If we compare the amounts of money inscribed on the Siscia tags with those from other lead tags, there are no major differences. One lead tag kept in the Bregenz Museum and published by R. Egger seems to indicate that 7 *paenulae* had cost 3.5 *denarii*, while a single cloak was estimated at 2 *sestertii* (if the interpretation of the inscription is correct, obviously).⁵⁴ As far as a tag from Kempten is concerned, one *sagum* could have cost 7 *denarii*, but Egger is more inclined to believe that this price concerns several *saga*.⁵⁵

The five lead tags from Magdalensberg have all price indications, and it is interesting to point out that, according to R. Egger, the inscriptions distinguish the wages of the fullers from those of the tailors and menders. Thus, the cleaning of eight cloaks (*gausapa*) would have cost 10 *denarii* (5 *sestertii* each),

⁴⁸ Bowman and Thomas (2003: 53–8, n. 596).

⁴⁹ *CIL* VIII. 4508; Cagnat (1914b: 144–6); Haywood (1938: 80–2); Vittinghoff (1953: 370, 382); Darmon (1964: 7–21); Mrozek (1975: 39); Troussel (2002–3: 355–71); Morizot (2009: 158–63).

⁵⁰ Jones (1953: 293–305); Szilágyi (1963: 377–81); Mrozek (1975: 103–26); Hiernard (1997: 79–87); Corbier (2005: 330–41).

⁵¹ France (2001: 314); Troussel (2002–3: 362). ⁵² *CIL* IV. 1392; Mrozek (1975: 38).

⁵³ Mrozek (1975: 38; 2004: 152). ⁵⁴ Egger (1961–3: 186–8).

⁵⁵ Egger (1961–3: 190–1).

while the mender would have been given 1 *sestertius* and 2 *asses* per cloak. The processing of three yellow cloaks was estimated at 6 *denarii*, or 2 per cloak, the payment for the mender having been 2 *sestertii* per cloak. The processing of three *paenulae* was also estimated at 6 *denarii*, but the mender was entitled to only 1 *sestertius* per cloak. The cleaning of five cloaks had cost 5 *denarii*, but there are no indications about the potential wage of the mender. The remaining 2 tags from Magdalensberg were related, according to R. Egger, to the making and acquisition of 10 *paenulae* and 10 *saga* from Ulcissia. The price is the same for both items, 1 *aureus*—that is, 25 *denarii*—except that, as far as the *saga* are concerned, the amount is split between the *excisor* and the *sutor*, the former being given 2 *denarii* per cloak while the latter received only 2 *sestertii* per *sagum*.⁵⁶

At Forggensee bei Dietringen, when the tags bear an indication of monetary value, those amounts range from 1 to 2.5 *denarii* per one *casula*, from 2.5 to 6 *denarii* per one *sagum*, perhaps from 2 to 6 *denarii* for a *singilio*, while three cloaks (if the abbreviation M had been correctly interpreted) could have cost either 6 or 9 *denarii*.⁵⁷

At Kalsdorf, where the second biggest collection of lead tags after Siscia has been found, the amounts range from 1 to 15 *denarii*, but it must be emphasized that price indications are far less common than in Siscia. In fact, prices can be found on only 6 tags, respectively of 1 *denarius*, 2.5 *denarii* (twice), 3 *denarii*, 7 *denarii*, and 15 *denarii*. It would also seem that those amounts are related not to the cost of clothing items but rather to some services, probably the cleaning or finishing of textiles.

As already pointed out, the amounts indicated on the tags from Siscia are mostly less than 3 *denarii*. Actually, almost one-third is even less than 1 *denarius*. Only 6 per cent of those prices are higher than 7 *denarii*, and the highest amount encountered on the tags seems to have been 16 *denarii* (Fig. 13.3.1). This amount follows the abbreviation *R P XVII* and thus seems to correspond to a quantity of 17 undefined items or perhaps a weight of 17 pounds.⁵⁸ Whatever merchandise or service might have been concerned, the price per unit would have been less than 1 *denarius*, and we cannot therefore assume that it was an expensive item. If we look at other inscriptions where higher amounts of money seem to appear, we can see that in many cases the amounts seem to correspond to higher quantities. For example, a price of 13 *denarii* could correspond to a quantity or weight of 11 (it is, however, not certain, since the inscriptions might not be contemporaneous), another instance of the same price corresponds to a quantity of 13.5, a price of 12 *denarii* corresponds to a quantity of 17, 11 *denarii* correspond to the number 38, while a price of 10 *denarii* corresponds to a quantity of 16 (Fig. 13.3.2–5, Fig. 13.4.1).⁵⁹

⁵⁶ Egger (1967: 206–10).

⁵⁷ Römer-Martijnse (1996–7: 28).

⁵⁸ Cat. 19.46

⁵⁹ Respectively, cat. 23.52, 08.19, 23.09, 23.54, 20.45.

Nevertheless, some high amounts of money do not correspond to high quantities or heavy weights. For example, one price of 10 *denarii* is related to the abbreviation *PAL C* (Fig. 13.4.2), probably a *pallium* whose colour has to be defined (*candidum*, *coccinum*, *corticeum*?).⁶⁰ Since no quantity is mentioned, it would seem that the tag concerns a single cloak.

A price of 10.5 *denarii* is rather unusual, because it is related to the abbreviation *P III M* belonging to a series of Siscia tags in which amounts over 2 *denarii* are quite rare (Fig. 13.4.3).⁶¹

The abbreviation *SAG M* (*sagum militarium*?) is once followed by a price of 11 *denarii* (Fig. 13.4.4).⁶² Does the inscription refer to several cloaks (*saga militaria*?) and not just one? A price of 12 *denarii* follows the abbreviation *SAG P XII* (*saga piperina duodecim*?) (Fig. 13.4.5). Does every cloak cost only 1 *denarius*?⁶³ A price of 13 *denarii* follows the abbreviation *SAG P R POND II* (Fig. 13.4.6).⁶⁴ This inscription probably concerns just one *sagum*, but the weight is problematic. It is very unlikely that a cloak could have weighed just 2 pounds, since such a weight of wool would just have been sufficient for a single tunic.

Be that as it may, those higher prices remain rather the exception than the rule.

If one looks at inscriptions whose reading is not dubious, one can observe prices that are much lower. For example, *abollae* are related to prices ranging from 14 *asses* to 5 *denarii*,⁶⁵ *banatae* to prices ranging from 1 to 4 *denarii*,⁶⁶ a purple *chlamys* appears with a price of 6 *denarii*,⁶⁷ a blanket (*lodix*) weighing 6.5 pounds with a price of 6.5 *denarii*,⁶⁸ a *palla* with a price of 2 *denarii* and 3 *sestertii*,⁶⁹ a *pallium* with a price of 1 *denarius*,⁷⁰ two *palliola corticia* with a price of two 2 *sestertii*,⁷¹ a *paenula* with a price of 4.5 *denarii* and another one with a price of 2 *sestertii*,⁷² a red *sagum* with a price of 3 *denarii* and 3 *sestertii*,⁷³ another one of green colour and weighing 5 pounds is associated with the same price,⁷⁴ an unspecified number of *saga* is associated with the abbreviation *FVL* and a price of just 2 *sestertii*,⁷⁵ while two small cloaks (*sagula*) are related to a price of 2.5 *denarii*.⁷⁶

In one inscription a red *stragulus* is related to a price of 5 *denarii*, 2 *sestertii*, and perhaps 1 *as*.⁷⁷ Tunics are associated with prices ranging from 3 *sestertii* to 1.5 *denarii*.⁷⁸

⁶⁰ Cat. 26.22

⁶¹ Cat. 14.22

⁶² Cat. 04.12

⁶³ Cat. 04.03; the reading *sag(um) (libra) p(ondo) duodecim* seems impossible to me, since such weight would be far too much for a single cloak. We could perhaps interpret these abbreviations as *sag(a) (libra) p(ondo) duodecim*. Three cloaks could have weighed 12 pounds, but it would nevertheless be odd to note just the weight and not the exact quantity.

⁶⁴ Cat. 04.08

⁶⁵ Cat. 01.01, 01.03–5

⁶⁶ Cat. 01.06, 01.08, 01.09, 01.11, 01.13

⁶⁷ Cat. 01.15

⁶⁸ Cat. 01.30

⁶⁹ Cat. 01.33

⁷⁰ Cat. 01.34

⁷¹ Cat. 01.36

⁷² Cat. 01.50, 01.51

⁷³ Cat. 01.56

⁷⁴ Cat. 01.63

⁷⁵ Cat. 01.65

⁷⁶ Cat. 01.66

⁷⁷ Cat. 01.69

⁷⁸ Cat. 23.80, 23.81, 23.82, 23.83

Wool, when mentioned in the inscriptions, is not always related to prices, but, when amounts of money do appear in those inscriptions, they vary from 2 *sestertii* to 3 *denarii*.⁷⁹ Fabrics of different colours are related to prices ranging from 2 *sestertii* to 5 *denarii* and 3 *sestertii*.⁸⁰

When interpreting those inscriptions, I must point out that I intentionally avoid saying that a textile product cost a certain amount of money. In fact, those prices could represent the value of a given garment or fabric—that is, the selling price of a given item—but it is very likely that in many cases those prices represent the cost of processing those items—for example, cleaning or dyeing them. Obviously, in those cases, the amount of money indicated in the inscription represents only the cost of that service and not the value of the item itself, which would certainly have been more.

Considering the prices of new garments I have already mentioned, which seem to have been rather typical for the first and second centuries AD, we can assume that, as far as the Siscia tags are concerned, most of the prices lower than 2 *denarii* and probably all the prices under 1 *denarius* would be related to the processing of the clothes—that is, the cleaning and fulling as well as the dyeing (actually, the redyeing by *offectores*, since most items in need of dyeing on those tags were garments and not raw wool). One cannot exclude that some of the higher prices are also related to such services, perhaps because of the use of higher-quality dyes or because of the processing of a larger number of items, but it is likely that in some cases those high prices indicate commercial transactions involving the production and processing of new garments. As a matter of fact, one cannot exclude either that some of the lower prices indicate the cost of new but low-quality garments.

THE SISCIA PRICES IN CONTEXT

How can we define the prices on Siscia tags from the point of view of the customers? The amounts are far from being outrageous, but they are not modest either. When one knows that the entry fee for the public baths in the first century AD was just 1 *quadrans* in Rome and 1 *semis* in Vipasca during Hadrian's reign or that a plate of mashed peas could be had for 1 *as* in Rome in Martial's time and that one could eat for 3 *asses* in an Italian tavern in the

⁷⁹ Cf. cat. 01.27 as well as catalogue group 3; Radman-Livaja (2009; 2014 (18 entries)).

⁸⁰ Cf. cat. 01.23, 01.37, 01.38, 01.39, 01.40, 01.42, 01.43, 01.44, 01.46, 01.47, 01.48, 01.49 as well as catalogue group 2; Radman-Livaja (2009; 2014 (27 entries)).

second century AD—a mediocre meal presumably—spending 1 or 2 *denarii* by visiting a fuller was certainly not a negligible amount for common people.⁸¹ We can assume that in the Roman Empire in the first and likely for the most part of the second century AD an adult city-dweller with 5 or 6 *denarii* at his disposal could at least manage to eat for a month, at least in normal circumstances, when there was no war or shortage of food. Nevertheless, a better and more varied diet was certainly more expensive.⁸² The prices on the Siscia tags probably cover a fairly wide span of services offered by the textile industry. Lower prices represent most of the prices attested on the tags, and we can presume that spending several *sestertii* to clean one's clothes or redyeing a garment was not too expensive, even for rather poor people, even more so since they probably did not have to visit a fuller very often. Hiring the services of a dyer was probably an even rarer occurrence. When one reads the publications devoted to the wages and salaries in the ancient world, especially during the Principate, which concerns us more directly,⁸³ we must conclude that the services offered by fullers, dyers, weavers, and tailors were accessible to the large majority of the working adult population that was benefiting from more or less regular wages. Obviously, not all the services and not all the products were accessible to everybody, but there is no reason to doubt that even people from the lower social classes could afford to clean their clothes at a fuller's shop without financially ruining themselves. We can assume that people from almost all the social classes were among the clients of Siscia's fullers and dyers and if some could afford a cleaning only twice a year or could pay only for a low-quality dye, others were certainly able to visit regularly those shops and buy decent garments.

APPENDIX (CATALOGUE OF TAGS ILLUSTRATED)

The inscriptions of the tags shown on Figs 13.1–13.4 are presented here in a very basic transcription; for a more detailed analysis and thorough interpretation of the abbreviations, cf. Radman-Livaja (2009: 70–105; 2014: 63–90), as well as the respective catalogue entries.

⁸¹ Mrozek (1975: 24–7, 51–2).

⁸² Mrozek (1975: 30–6).

⁸³ Szilágyi (1963: 345–77); Mrozek (1975: 69–102; 1989: 92–130); Corbier (1980: 62–86); Cuvigny (1996: 139–45); Rathbone (2009: 310–17, 321–4).

Fig. 13.1.

1. inv. 12082 / cat. 23.07

22.7 × 28.4 × 1.2 mm

obverse

Papiria

Pyramis

reverse

c() i r() l() l()

mur(teolus, a, um)

c() r() – bu() x

X s

2. inv. 12341 / cat. 01.42

21.2 × 36.8 × 1.2 mm

obverse

pan(n)um

cor(ticeum)

reverse

r() a() i p() i

X s =–

3. inv. 12907 / cat. 21.67

21.8 × 35 × 1.3 mm

obverse

Iulia

Statia

reverse

r() (ha)em(atinus, a, um) i f()

i X =– £

4. inv. 12269 / cat. 21.57

19.8 × 30.7 × 1.2 mm

obverse

Satur

nina

Cresciş

reverse

r() ii f()

X =– £

5. inv. 12249 / cat. 20.28

25 × 30.5 × 1.6 mm

obverse

Maser

o

reverse

r() (ha)em(atini, ae, a) iii

X i

6. inv. 12173 / cat. 12.36

16.3 × 25 × 1.3 mm

Obverse

p() ii

viii

reverse

X i =–

7. inv. 12117 / cat. 25.10

25.1 × 33.4 × 1.1 mm

obverse

nothing

reverse

iii

X i s

8. inv. 12190 / cat. 05.03.

22 × 30.6 × 0.7 mm

obverse

Longinus

Victoris

reverse

sar(cina ?) or sar(cire ?)

p() iii m()

X ii s £

Fig. 13.2.

1. inv. 12075 / cat. 12.39

19 × 27.4 × 1.5 mm

obverse

p() X i s =

reverse (older inscription)

c X iii s

2. inv. 12467 / cat. 18.15

22.5 × 26.5 × 1.6 mm

obverse

r() vi

X i z

reverse

nothing

3. inv. 12908 / cat. 07.08.

27.8 × 31.4 × 0.9 mm

obverse

X == £ >

Iulia

Maximi

reverse

pal(liolum) pip

erinum

p(es) i

A *pallium* measuring just one foot or weighing just one pound is a very unlikely reading, therefore the word *palliolum* would be a more plausible reading.

4. inv. 12449 / cat. 01.01

24.3 × 42.2 × 1.7 mm

obverse

Cappo

reverse

abulla

m(ilitaria ?) X s == £

5. inv. 12833 / cat. 01.69

14.8 × 28.6 × 1 mm

obverse

Tritus

stragulus

fer(rugineus)

reverse

X v s -

Fig. 13.3.

1. inv. 12694 / cat. 19.46

24.8 × 35 × 2 mm

obverse

Singo

nius Ru

finus

reverse

r() p() xvii

X xvi

2. inv. 12827 / cat. 23.52

19.6 × 31.8 × 1.5 mm

obverse

p(ondo) xi cus(culiorum)

(older inscription ?)

p r ful

X xiii

reverse

Fuscī

p(ondo) xx

vel(lera)

Fig. 13.3. Continued**3. inv. 12159 / cat. 08.19**

23.7 × 35.1 × 1.5 mm

obverse

Vibius

Varicarta

(older inscription)

X s

reverse

b() i m() xiii s

X xiii

4. inv. 12593 / cat. 23.09

25.2 × 37 × 0.6 mm

obverse

com() spe()

vel(lera)

xvii

r() i ç() ii **or** Riçii**reverse**

X xii

5. inv. 13026 / cat. 23.54

26.7 × 35.4 × 1.2 mm

obverse

Rufo

Pr(a)econ(i)

reverse

X xi

r() a() xxxviii **or** ra(tio) xxxviii

It is not certain that the inscriptions on the obverse and reverse are related to each other.

Fig. 13.4.**1. inv. 12347 / cat. 20.45**

27.5 × 32.7 × 1.2 mm

obverse

r() xvi

m()

X x

reverse (older inscription)

Muccī

X iii

2. inv. 12745 / cat. 26.22

27.4 × 34.2 × 1.3 mm

Obverse.ester **or** HisterArticaī **or** Arti c() xii**reverse**

pal()

c()

X x

3. inv. 13038 / cat. 14.22

16.7 × 28.6 × 1.5 mm

Obverse

Ucco

Tarato

reverse

p() iii m()

> X x s

The meaning of the sign > is far from clear.

4. inv. 12217 / cat. 04.12

30.8 × 31.6 × 1.8 mm

Obverse

Melava

Saetibo

gi

reverse

sag(um)

m(ilitarium ?)

X xi

Fig. 13.4. Continued

5. inv. 12046 / 04.03

21.3 × 27.5 × 1.2 mm

Obverse

Peda

ni(i)

reverse

sag(a) p(iperina)

xii

X xii

6. inv. 12050 / cat. 04.08

17.6 × 29.5 × 0.9 mm

obverse (older inscription ?)

p r i cor

lassari

reverse

sag(um) p() r()

pond(o) ii

X xiii

The inscriptions are probably not contemporaneous.

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Exports and Imports in Mauretania Tingitana

The Evidence from Thamusida

Emanuele Papi

INTRODUCTION

In the 1960s M. Tarradell invented the model of the ‘Circle of the Straits’.¹ The concept was subsequently developed by M. Ponsich for the Roman period and is still used by many to explain ancient Morocco, most recently by Brent Shaw.² According to this model, the Roman province of Mauretania Tingitana—modern Morocco—was simply a periphery of the Iberian Peninsula and a ‘protectorate’ of Spanish Baetica,³ a kind of underdeveloped appendix to the Mediterranean. Brent Shaw writes that it was a sort of ‘Far West’, ‘a dependent outlier of the Baetican economic engine...a case where it is difficult to explain the existence of characteristic Mediterranean developments—patterns of urbanization, modes of rural development, types of artisanal production and consumption—without postulating the power of a state with large-scale capacities of tributary demand and mobility of resources’.⁴ ‘There are indeed some cases of local production, but they are sporadic, weak, and have no long-term impact on the local economy.’⁵ Moreover, Shaw went further, and denied that the province had any significant Mediterranean connections: ‘Almost nothing came directly to southern Tingitana from Mediterranean sources.

¹ Tarradell (1960: 212).

² Ponsich (1982); Shaw (2006: esp. 24–32); cf. Teichner and Pons Pujol (2008).

³ Shaw (2006: 28): ‘But almost every indicator that we have, even under the high Roman empire, seems to show that [Tingitana benefited from its relationship with the Mediterranean] as an extension of interests concentrated in the Circle of the Strait, specifically those at Gadir, Roman Gades, and more widely in the Guadalquivir River valley.’

⁴ Shaw (2006: 13).

⁵ Shaw (2006: 15).

In an important sense, Tingitana was beyond the terminus of a long arc of seaborne communications that extended from the western shores of the Italian Peninsula, by way of the Tyrrhenian Sea and southern Gaul, down the eastern seaboard of Spain.⁶ “Tingitana was not just beyond the end of the Mediterranean that began and ended with Gadir and the Circle of the Strait. It was an artificial extension that was even beyond Mediterranean imaginations of the time.”⁷

On closer examination, this vision of Tingitana as the *cul de sac* of the Empire and an island beyond imagination suffers from a colonial perspective: the evidence is more complex. The disproportionate amount of archaeology carried out in the two different areas, Baetica and Tingitana, has led to datasets that are quantitatively and qualitatively different.⁸ Collapsing the lands south of Gibraltar into a single economic unit dependent on Cadiz, and denying Tingitana an identity of its own, gives us a landscape characterized principally by emptiness. There is no doubt that production and material culture in the region of the straits and the Alboran sea display a certain unity, from prehistory to the Berber conquests of the Almoravid and Almohad periods, but this is the case for any neighbouring areas in the Mediterranean—one thinks of Sicily and Africa, or Crete and Cyrenaica.⁹

What I want to do here is to present the evidence for a different view of the economy and trade of Tingitana between the first and the third centuries AD. My material comes principally from one context I know well, the excavations by a joint Italian–Moroccan team that I directed at the military *vicus* of Thamusida,¹⁰ but I will refer to other recent work as necessary. I want to situate Mauretania within the history and geography of north-west Africa, the changes produced by Roman domination, the specialization of agricultural and craft production to service the *annona* and overseas trade, and the new influxes of material from the western Mediterranean. In terms of exports I will consider three products in particular: grain, oil, and fish sauce—wine is for the moment invisible in the archaeology—while for imports I will make reference to standard archaeological categories: finewares, amphorae, and marbles. I will leave aside coinage, terracottas, glass, metals, worked bone, pigments, and building materials.

Thamusida is an extreme case in terms of the settlement of Roman Morocco: it is small, military, and not strictly urban at all; there were also a number of major cities, all with pre-Roman pasts: Tingis, the provincial capital, Volubilis, the administrative and military centre of the south, the old Augustan colonies of Banasa and Zilil, the Mediterranean enclaves of Septem Fratres and Rusadir, and the great Atlantic ports of Sala and Lixus. The ruins of the fort and the military *vicus* at Thamusida, modern Sidi Ali ben Ahmed, cover around

⁶ Shaw (2006: 24).

⁷ Shaw (2006: 29).

⁸ Teichner and Pons Pujol (2008).

⁹ For the creation of the model of the Circle of the Straits, see Papi (2016).

¹⁰ See Akerraz and Papi (2008); Akerraz et al. (2009); Papi, Akerraz, and Camporeale (2014).

14 hectares on the southern frontiers of the province, along the river Sebou not far from the ocean. The Roman town was built over the remains of a small Mauretanian settlement dating from the end of the sixth century BC, fortified and extended during the first century BC.¹¹ The army base functioned from the Julio-Claudian period until the end of the third century AD, and the village continued to exist into the fifth. In the Islamic period the high ground was used as a collective granary with silos.

EXPORTS

Grain

Until recently, the evidence for Mauretanian grain was limited to the wheat represented on the pre-Roman coinage and mentioned in a few ancient texts.¹² The excavation of two granaries at Thamusida and the identification of a third at Banasa have provided better evidence, placing grain firmly among the exports of the province.¹³ The ecology of the vast Atlantic plain of the Gharb is particularly favourable to the cultivation of cereals: the valley of the Sebou, where Thamusida and Banasa are found, seems in the Roman period to have been given over to the monoculture of grain, replacing the traditional production of *salsamenta* (at Thamusida), although some residual olive and perhaps fish-sauce production persisted. The granary of the *castrum* of Thamusida, measuring about 10 by 50 m, with a maximum capacity of 300 tons, was for the benefit of the troops. However, the granary at the port, built—or rebuilt—at the end of the second century with military construction techniques, which covered around 1,000 m² and was subdivided into three bays, could hold up to 1,000 tons of grain. This implies that it was used to store the grain coming from the district of the Gharb for the *annona*. The *horrea* of Banasa is smaller, with an almost square plan, and a maximum capacity of 500 tons. The soils of the Sebou valley, where it was potentially possible to grow grain (where there are alluvial deposits or *tirs*, low salinity, and adequate annual rainfall), extend throughout the plain of the Gharb and could certainly

¹¹ Akerraz, El Khayari, and Papi (2009).

¹² The export of grain from Tingitana to Rome had already been suggested by Besnier (1906). For the province of Mauretania Caesariensis we have no data to compare with the situation in Tingitana. For the Iberian Peninsula, granaries are not known within the cities, but only buildings for storing grain in villas or other rural settlements: Salido Domínguez (2011); for warehouses in general: Morais and Salido Domínguez (2013). For the *horrea* of Numidia, see Papi and Martorella (2007 [2009]).

¹³ Papi and Martorella (2007); see also Andreau (2007 [2009]); De Romanis (2007 [2009]); Virlouvét (2007 [2009]); Carre (2011); for other warehouses in Tingitana, Rebuffat (2010).

produce much more grain than could be held in these *horrea*. The quantity destined for export is impossible to establish, considering that the granaries were designed for transit, and were filled and emptied more than once during the season of harvest and export.

Olive oil

In spite of the suitability of the hills of Mamora for olive cultivation, there is little evidence beyond a single press counterweight for the cultivation of olives during the Roman period.¹⁴ However, the limestone hills of the Zerhoun around Volubilis were intensively cultivated for olives, which were processed in over fifty-nine presses in the city itself, one for every 4,237 m² of the 25 hectares excavated within the city, and in rural farms, of which about twenty have been identified in survey. Presses are built into most of the very luxurious houses of the town, and olive-oil production was clearly a source of its wealth.¹⁵ The olive-oil-producing workshops of Volubilis are being studied by L. Bigi, who has calculated a distribution of one workshop for every 4,786 m² for the north-east quarter (fourteen olive-oil workshops excavated in 6.7 ha), one every 1,406 m² for the southern quarter (thirty-two workshops in 4.5 ha), and one every 616 m² for the western quarter (of which only a small part has been excavated, with six workshops in 0.37 ha). The olive-oil workshops were established in the second half of the second century AD by adapting rooms in earlier buildings (none was designed as part of the original construction), probably partly to replace imported oil from Baetica, imports of which diminished from the first century AD. The establishments seem to have remained active until the fourth century AD. The rooms used for making olive oil were provided with equipment to optimize production on a considerable scale, with rotary olive mills composed of *meta* and *catillus*, and some also with edge-runner mills to homogenize the olive paste after milling, and lever-and-windlass presses with press-beam (*prelum*), counterweight, and uprights (*arbores*).

Other towns in Mauretania Tingitana also have evidence for olive-oil production. At Sala, three presses have been identified in the small area of the city excavated around the forum;¹⁶ at Banasa there are six probable establishments; and, at Zilil, two oil-producing workshops dated between the

¹⁴ Bigi (2014).

¹⁵ Akerraz and Lenoir (1981; 1987). A mixed use of the presses for both olive oil and wine, such as Mattingly (2009) has proposed for the presses of Uchi Maius, is to be excluded. Contrary to the hypotheses of Mattingly (1996) and Brun (2004: 256–7), the counterweights are not for presses with an endless screw, which does not yet seem to be attested in Morocco.

¹⁶ Ammar and Hansali (2011). The number of oileries was greater than three, as is shown by eleven rotary mills and six counterweight blocks preserved on the site.

fourth and the first half of the fifth centuries AD.¹⁷ Around Tangiers, fifteen oileries have been identified by survey and excavations in the countryside.¹⁸

It is still not clear what happened to the oil produced at Volubilis. The town, which extended over more than 40 hectares, and its dependent *castra* and villages Ain Schkour, Sidi Moussa bou Fri, and Tocolosida (16 hectares), would have absorbed some, but not all, of the production, in addition to oil transported from Baetica in Dressel 20s and from other regions of the Maghreb in Africana amphorae, both present in the stratigraphy in unknown quantities. We are as yet unable to say which amphora types were used to transport oil from Volubilis or whether the surplus found its way onto the international market. The 'Volubilis Amphora', with a shape similar to that of the Gauloise 4, is a possible candidate for oil exports; it was produced in local kilns in the third century AD,¹⁹ but we lack archeometric data and a distribution map. The 'Sala Amphora', produced during the reigns of Juba and Ptolemy, has been identified as an oil amphora, but here too the data are little more than impressionistic.²⁰ Nonetheless, the resultant picture of oil production from the region is unexpected and is unusually impressive, not least in the concentration of oil production within the town of Volubilis.

Fish sauce

As for fish sauce, with the annexation of Tingitana as a province of Rome many small family-based units closed down, their numbers diminishing from forty-two to twenty-six known examples, and new establishments were installed at principal ports and coastal villas. The new factories at Lixus are some of the largest known from the ancient world, hardly Brent Shaw's 'small peripheral spin-off' of Cadiz:²¹ at least ten units extend over almost a hectare, comprising more than 150 vats with a total capacity of over 1,000 m³.²² We know nothing of their owners nor how they were managed, nor is it easy to reconstruct the size of the single units from the partially excavated remains. Nevertheless it is clear that along the quays of the port an industry developed for the concentration, salting, and pickling of fish products, and for their storage and export in amphorae. A recent survey has shown that these

¹⁷ Zilil: Lenoir (1987: 440–2 and tavv. VI–VII).

¹⁸ Ponsich (1970).

¹⁹ H. Hassini, pers. comm. In the excavations of the Maison à la bague d'or a dump of Dressel 7–11 amphorae was found, of uncertain contents: L. Bigi, pers. comm., based on archive material.

²⁰ Boubé (1987–8).

²¹ Shaw (2006: 15): 'To the extent that similar factories [i.e. for salted fish and fish sauces] were found in some centers in Tingitana, they were small peripheral spin-offs of the major centers of production centered on Gadir/Gades and its satellites along the shores of the Strait.'

²² Ponsich and Tarradell (1965: 38–40).

production centres are densely distributed along the coast near the Straits,²³ far more densely than Ponsich and Tarradell suggested. Lixus and Tingi (Tangiers) produced their own particular varieties of *salsamenta* for export: *cordula* and *laccatum*, as recorded on forty-odd *tituli picti* on the necks of the amphorae.²⁴ The *tituli picti* indicate production at Lixus, Portus Lixitanus, and Tingi. The products marketed in the amphorae had been prepared in various ways: *cordula vetus*, *cordula arguta vetus*, *cordula arguta vetus excellens*. There are no attestations that link the merchants of salted fish from Tingitana with those of Baetica and with Cadiz, nor with traders in Spanish olive oil. Some centres were active up until the fifth century AD, as at *Septem Fratres*.²⁵

The absence of kilns in the archaeological record has usually been ascribed not to absence of research,²⁶ but to the incapacity of the Mauri to manufacture the containers, notwithstanding the abundance of raw materials and a tradition of manufacture going back to the fifth century BC; there are pre-Roman kilns at *Banasa* and *Volubilis*. For believers in the 'Circle of the Straits', the amphorae were produced in Spain and carried empty to Morocco, then filled with *garum* and brought back to Cadiz for redistribution.²⁷ A similar scenario has been suggested for oil: that it was produced in Morocco and then transported to Andalusia to be mixed with the local produce and sold on with a Baetican label, on analogy with the common modern practice of adulterating Italian olive oil with oil from Tunisia. These are widespread impressions, but there is no evidence for them, and the excavation of five kilns at Thamusida for the manufacture of Dressel 18, Beltran IIB, and Dressel 7-11²⁸ now contradicts the hypothesis of the exchange of empty containers for those containing fish sauce; these kilns were built in the first century BC and dismantled by the army in the Flavian period. Fish-sauce amphora wasters, indicating local production of amphorae, are also beginning to appear in other centres.²⁹

There is in addition some scattered evidence for the export of timber, especially expensive hardwoods for decorative furniture,³⁰ and for wild animals, including elephants, attested in literary and epigraphic sources.³¹ Among the latter is an inscription attesting the relief from taxes of the town of Banasa by Caracalla in return for its supply (as a gift?) of exotic animals.³²

The principal exports of Mauretania were therefore grain, produced extensively on the plains of the Gharb, and various fish products, produced intensively on the coast, probably on individual estates owned by the local elite. Oil, again intensively produced, should be added to these products, although it is as yet not possible to quantify its export.

²³ Trakadas (2015). ²⁴ Papi (2016: 116–20).

²⁵ Villada, Suárez, and Bravo (2007). ²⁶ But see now Teichner and Pons Pujol (2008).

²⁷ Villaverde Vega (1992). ²⁸ Cerri (2007).

²⁹ For the 'Sala' and 'Volubilis' amphorae, see p. 431.

³⁰ Pliny, *NH* 13.95; cf. Harris, Chapter 7, this volume.

³¹ Pliny, *NH* 8.1, 8.9. ³² *IAM* 100 = *AE* 2008, 1707.

I will now turn to the imports, rather more briefly, as they resemble in many ways those of every area of the Roman Mediterranean.

IMPORTS

Finewares

The finewares imported into Morocco have until now been assigned the following sequence: Italian terra sigillata from 25 BC to AD 40, South Gaulish from AD 40 to 100, Hispanic from AD 100 to 150, and African Red Slip from AD 150 onwards.³³ A more clearly articulated picture emerges from the stratigraphic contexts at Thamusida, and it is also useful to try to define this further by considering the volume of goods and in relation to fabrics. It should be remembered that the sample is still small: only 3 per cent of the settlement within the walls has been excavated, in forty-three areas that cover around half a hectare. Nonetheless, in the absence of other stratigraphic contexts for comparison—though the extensive sigillata pottery of Volubilis has been well studied by Hassan Limane—our reconstruction awaits contradiction. One example is a rubbish tip³⁴ that accumulated between the middle of the first century and the beginning of the third at the centre of the *vicus*, filling the ditches and covering the remains of the fortifications of the Mauretanian village. Broken pots and empty amphorae, broken arms and unusable metal, food refuse and cadavers of animals piled up over a century and a half; afterwards, in the second half of the third century, the rubbish was thrown directly onto the streets. We excavated 125 m³ of the dump, corresponding to around 5 per cent of the whole. The results of this sample, the typologies and the percentages of the ceramics, conform with the data from all the other areas of the excavation. We quantified the pottery by calculating the minimum number of vessels from rims and bases, an operation facilitated by the relatively complete state of the pots and the decorations on the sigillata.³⁵

We found that at Thamusida the military and civilian community did not use Italian sigillata pottery, although this does appear in very limited quantities during the reigns of Juba II and Ptolemy. With the arrival of the army in the Flavian period, finewares began to arrive from *Gallia Narbonensis*, *Hispania Tarraconensis*, and *Baetica* (1,119 sherds corresponding to 1,004/1,025

³³ Shaw (2006: 15–16): ‘Over the course of its Roman history, Tingitana experienced a normal western Mediterranean sequencing of fine pottery types. Italian terra sigillatas were replaced by southern Gaulish wares, and these, in turn, by Iberian sigillatas.’ Shaw here follows Gozalbes Cravioto (1997).

³⁴ Excavation Area 37.

³⁵ Excluding African Red Slip.

pots) and then from *Africa Proconsularis* (304 sherds corresponding to 237/251 pots). From the Flavian period to the end of the first century AD South Gaulish and Hispanic sigillata was imported in more or less equal quantities, and Hispanic sigillata was imported up to the middle of the second century AD, contemporary with the arrival of African Red Slip. If we count the stamps of the various production centres, the vases of La Graufesenque are the most common among the South Gaulish pottery, with some examples from other centres—Montans, Banassac, Les Rosiers, Lezoux—and a few vases produced on the Rhine at Rheinzhabern. The necropolis of Sala also yields a majority of material from La Graufesenque among the South Gaulish pottery, which shows that this is not a purely military phenomenon. The subdivision of Hispanic products into two types, A and B,³⁶ has been outdated by the identification of the atelier of Tritium Magallum in the region of the Rioja, in the upper valley of the Ebro in Tarraconensis, which may be now added to the kilns at Andujar in the middle valley of the Guadalquivir in Baetica. Without the results from the archeometric analyses, which are still underway, and in the absence of distinctive characteristics and decoration in the ceramic repertoire, we cannot calculate the quantity of imports from the two production areas of Tarraconensis and Baetica. However, stamps from Thamusida suggest that four-fifths of the material was produced in Tritium Magallum in Tarraconensis and only a fifth at Andujar in Baetica. The predominance of stamps from Tritium Magallum also finds confirmation at Sala, where the ratio is three from Tarraconensis to one from Baetica.

The importation of African Red Slip, presumably from *Africa Proconsularis*, begins in the Trajanic period, preceded by African cooking wares by around thirty years. The stock of the camp and the *vicus* was almost exclusively limited to cups of Hayes forms 8 and 9, which together comprise 90 per cent of the material present. After the departure of the army, imports ceased entirely.

Amphorae and jugs

The amphorae show substantial import of foodstuffs from overseas. The rubbish tip excavated in area 37 has yielded 247 amphorae containing oil, fish sauce, and wine for the camp and the *vicus*, and dating from the second and third centuries AD. From Spain there are nineteen Dressel 20s, carrying oil, from Baetica or Tingitana 156 Dressel 7–11 and Beltran IIB for *salsamenta*, while wine amphorae come from the Aegean (Camulodunum 184), from Gaul, six Gauloise 4, from Tunisia four Africana I, a Keay 19 and a Keay 11,

³⁶ Gozalbes Cravioto (1997: 205–10); cf. Shaw (2006: 16).

from Lusitania, four Almagro 51a, from the eastern Maghreb a Dressel 30, and four Dressel 2–4s from Baetica or Italy. Fifty Dressel 18s were used for the construction of the Mauretanian fortifications and may be counted as residual. The contents of the amphorae have not been verified by residue analysis, and the identifications offered here follow the traditional attributions.

We have an idea of the army's supplies in the final period—perhaps even the last year—of their occupation from the contents of two warehouses in the camp itself, where the amphorae were found *in situ*. Africana II-type amphorae, which carried oil and fish sauce from Byzacena, were in the majority, numbering twenty-two of the thirty-five recovered, followed by five Dressel 23s with oil from Baetica, and four each of Dressel 30 and Almagro 51c from Lusitania or Tingitana. These deposits also reveal a new transport container in the form of an oval jar with a flat base and two handles, 90 centimetres high, containing 312 litres, or 12 amphorae. Thirteen of these were found, which in total would have contained over 4,000 litres. Of these, two certainly contained fish sauce.³⁷ It is not clear where these jars were made.

Marbles

In Tingitana marble was very rarely used: we find a few inscriptions and statues, a few instances of veneer and small luxury vessels. Only in the coastal cities of Tingi, Sala, and Lixus do we find it used as a construction material for architraves, column bases, and capitals. More common ornamental stones were limestone and local calcareous sandstone, with a distribution from their quarries up to a distance of around 100 kilometres. In the French and Moroccan/Italian excavations at Thamusida, which have uncovered 15 per cent of the habitat, only twenty-two marble fragments have been found, including inscriptions, veneers, basins and pestles, a table leg, and a togate statue. To get an idea of the overall quantity, the volume of all the fragments of inscription found comes to 0.02 m³, corresponding to a metre-square slab 2 cm thick. The various archeometric analyses conducted on all the marble³⁸ show provenances in Proconnesus, Mount Pendeli in Attica, Carrara in Italy, Estremoz in Portugal, and a few Moroccan quarries outside the Roman province.³⁹ However, the evidence for the use of marble remains very limited.

³⁷ According to the residue analyses carried out by A. Pecci.

³⁸ X-ray diffraction, X-ray fluorescence, optical microscopy, SEM, and carbon and oxygen isotope mass spectrometry.

³⁹ An initial attribution of some marbles to Macael or Mijas in Baetica has been contradicted by subsequent analyses.

For luxury decoration in both public and private spaces, bronze seems to have been preferred: it is found everywhere, and sometimes, as at Volubilis, in huge quantities.⁴⁰

FURTHER OBSERVATIONS

A couple of further points. As well as making a minimalist assessment of imports to and exports from Morocco, the model of the 'Circle of the Straits' supposes that Cadiz served as the redistribution centre for all the wares arriving in or coming from Tingitana, but there is no evidence for such a system, with controlled navigation and economic *dirigismo* in an almost Venetian style.⁴¹ It presupposes that after Gibraltar ships sailed onward for another 75 miles towards the warehouses of Cadiz, where they were unloaded, and then were recharged with cargoes to redistribute to the markets of Tingitana. There is no trace of this detour in the maritime itineraries, which show direct routes, and name a ferry for Tingi from Baelo Claudia.⁴² There is one piece of evidence that strictly contradicts it, the shipwreck of Pecio Gandolfo near Almería, whose cargo shows that it left Lixus with a cargo of fish sauce, stopped at Malaca, where it took on other amphorae, then at Sexi, and finally went down 60 miles further on. It thus seems likely that transport ships went straight to the ports of Tingitana, both coastal (Rusadir, Septem Fratres, Tingi, Lixus, and Mogador), and fluvial (Tamuda, Thamusida, Sala, and Banasa).

And the story goes back further than the Roman period. The model of the Circle of the Straits seems to derive from a cliché dating as far back as Strabo about the backwardness of Mauretania Tingitana in the Augustan period in comparison with Baetica.⁴³ The presumed absence of urban centres, and the diffusion of a subsistence economy and picturesque nomadism can be shown to be false by the presence of various urban and smaller centres as early as the fifth century BC, which became more numerous in the third, and expanded significantly in the second and first centuries BC. Their economic activity was

⁴⁰ Boube-Piccot (1964; 1975).

⁴¹ Shaw (2006: 26): 'With a change of some names, the description [of Strabo on Cadiz] might be mistaken for a Venice.'

⁴² Strabo, *Geogr.* 3.1.8.

⁴³ Strabo, *Geogr.* 17.3.7 (C 828). Shaw (2006: 27–8): 'As Strabo notes, by the Augustan age the southern parts of the Iberian peninsula harbored immense concentrations of trade and commerce with Italy and with Rome in particular. He also signals the special importance of specific kinds of Mediterranean connectivity to this achievement. But these same lines of connectivity did not extend south of the Strait of Gibraltar where, Strabo notes, again in his own day, a profound absence of urban development and a local economy based on the self-sufficient production of pastoral nomads whose main concern (in his eyes) was the maintenance of their elaborate hair styles.'

differentiated, monetized, and targeted at export: the mining of copper, iron, and lead, the production of *salsamenta* and murex dye, of amphorae and pottery, and trade in precious wood, animals, ivory and slaves, as well as, probably, grain and trans-Saharan products. We know little of the transhumant tribes, with the exception of their names and their geographic distribution, as well as a few funerary tumuli such as the necropolis of Tayadirt, in the middle Atlas, which contains Etruscan imports of banqueting pottery. From the second century BC Mauretania was fully inserted into Italic and Mediterranean networks of commerce, and not simply through its relationship with Cadiz. It imported Black Glaze from Campania, Etruria, and Cales,⁴⁴ Tyrrhenian wines, particularly from the Vesuvian area,⁴⁵ oil from the Adriatic⁴⁶ and Tripolitania, Carthaginian products,⁴⁷ probably wine, Iberian pottery⁴⁸ and amphorae from Tarraconensis. We cannot reconstruct the volume of the imports from the evidence currently available, but their presence is clear. In the same period about ten mints were established in the coastal cities, which struck coinage with Punic texts: these include Rusadir, Tamuda, Tingi, 'Shlyt, Lksh, S'lt, Mqm Shmsh, and Bb'l. The regular city plan of Tamuda, the use of Hellenistic construction techniques at Tamuda and Lixus, the Neopunic inscriptions of Volubilis, the statues in Pentelic marble of Sala, probably carved in Athens, and the Italian palace at Lixus recently excavated all testify to the architectural models, the linguistic habits of the elites, the technologies, and international decorative styles that were circulating in the last two centuries before Christ, combining them with elements from African tradition.⁴⁹

For the Roman period, as I hope I have shown, the evidence from Thamusida soundly contradicts the dogma of the 'Circle of the Straits': there is no evidence for subordination to Baetica during the three centuries of Roman domination. Sigillata arrives from Tarraconensis and Narbonensis far more commonly than from Baetica, while pottery from Africa Proconsularis begins in the middle of the first century AD, just as it does in the rest of the western Mediterranean. The presence of the ubiquitous Dressel 20 amphorae from Baetica does not indicate Baetican economic domination any more than it does in Rome, where 40 million are found in Monte Testaccio between the age of Augustus and the middle of the third century. The discovery of kilns at Thamusida producing Dressel 18, 7–11 and Beltran IIB amphorae in the pre-Roman period show that it is now impossible to attribute these forms automatically to Baetica. There is as yet no known local production of Dressel 20 in the areas that produced oil. As we have seen, amphorae from Sala of the

⁴⁴ Campana A and B and Cales pottery.

⁴⁵ Greco-Italic amphorae, Dressel 1 and 1A.

⁴⁶ Brindisi amphorae and Lamboglia 2.

⁴⁷ Amphora Maña C2a.

⁴⁸ 'Kalathos' or 'Sombrero de copa' types: Jodin (1966: 72).

⁴⁹ On the complexity of North African culture and the difficulty of determining the origin of cultural models, see Momigliano (1935: 85–103).

Augustan period and Volubilis of the third century are not yet certainly identifiable as oil amphorae. Thamusida was, of course, a little *castrum* with a small *vicus* around it. For the urban centres we do not yet have comparable data, but where they do exist they seem to confirm our findings, as with the 350 tombs from Sala or the abundant sigillata from Volubilis.

The range of imports in the province bears comparison with other parts of the western Mediterranean; and the evidence for production shows export in large part for a Mediterranean market. Rather than a tight and restricted linkage with Baetica, we begin to see an economy whose key features included extensive cultivation of wheat for the *annona*, perhaps organized through the tribal leaders, who also formed part of the urban elites. We glimpse a certain amount of Roman dirigisme, and apparently the participation of the army in this exploitation of the Gharb for the good of Rome. But in parallel there also appears to have been intensive production of olive oil and fish sauce as a market-based way of making money for the local elites. In short, it is time to step outside the 'Circle of the Straits' and confront the Mediterranean economy as a whole.

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Part III

Trade beyond the Frontiers

The Silk Road between Syria and China

David F. Graf

For many in the contemporary world, the 'Silk Road' represents a purely modern concept, a 'romantic deception' propagated by global historians shedding 'Eurocentrism' in the interest of creating an 'East–West Transportation Corridor' to tap western capitalist markets for an opportunistic China.¹ Even Roman historians have criticized the concept for antiquity. In perhaps the most devastating critique the transcontinental overland trade route has received, Raschke depicts the overland 'Silk Route' with 'long caravans of camels burdened with silk lumbering through the desert' as mere 'mythology', a romantic fantasy obscuring the lack of evidence by economic theory.² Instead, he argues that the silk trade was 'indirect', representing it as a series of uncoordinated exchanges, beginning as tribute to the Xiongnu that eventually made its way into the hands of enterprising Sogdians, who sold the goods to Indian and Parthian merchants in the West, before they reached in the Roman world. The result was intended by neither the Chinese producers nor the initial nomadic recipients, and the middlemen themselves were completely unaware of its ultimate western destination.³ More recently, Fergus Millar has observed that there is no ancient evidence for an overland central Asian trade route, discarding Isidore of Charax's *Parthian Stations* in the first century BC as merely describing a military route through Iran, not a commercial artery connecting Mesopotamia with the East.⁴ Warwick Ball also regards an ancient transcontinental caravan route as 'a modern fabrication', a myth

¹ Christian (2000: 25), for the Silk Road as the basis for 'a unified and coherent history of Afro-Eurasia,' and Thorsten (2005: 302–4), for its impact on modern globalization. For criticism, see Whitfield (2007: 205).

² Raschke (1978: 605, 747, n. 436). Cf. Sartre (2000: 659): 'It is absurd to envisage a constant flow of merchants and caravans criss-crossing the deserts of Arabia, Syria and Mesopotamia.'

³ Raschke (1978: 619–22).

⁴ Millar (1998a: 121–1).

that has become enshrined as scholarly fact.⁵ It is no wonder that Susan Whitfield has recently queried: 'Was there a Silk Road?'⁶

There is little doubt that substantial amounts of Chinese silk entered the Mediterranean world in the first century BC and the Augustan era. Silk is often designated as *sericon*, derived from the 'Seres', the ethnic used for the Chinese. Nearchus, as reported in Strabo (15.1.20 [694]), opens up this chapter on *Serika*, and, after a hiatus of several centuries, the references to *serica* begin to proliferate. Vergil can speak about the Seres combing from leaves their fine fleeces (G. 2.121) and Ovid of 'fabric tissues' of the Seres (*Am.* 1.14.5–6); and silk is a frequent topic in Horace (*Carm.* 1.12.52; 3.29.27; 4.15.23). Propertius knows of *serica* tapestries (1.14.2), and Martial of *serica* 'cushions' (3.82.7) and 'dresses' (9.37.3). The sheer and transparent quality of *serica* dresses became a symbol of degeneracy of the emperors and aristocratic women, drawing condemnation.⁷ Nor is there any ambiguity about where the Seres were located. In the early first century BC, Apollodorus of Artemita, the author of a *Parthika*, indicates that Bactria in Ariana extended its sway as far as the Seres and the Phryni in the east (*FGrH* 779 F7 = Strabo 11.11.1 [516–17]). Later, Horace locates the Seres on the borders of the east (*Carm.* 1.12.56), and associates them with the Bactrians (3.29.227), the Getae, and the Parthians (4.15.23). Pomponius Mela links them with the Indians and Scythians (1.11), characterizing them as a people known for their *commercio*, 'commercial exchanges' (3.60). Pliny even boasts of visits to the Seres to obtain clothing (*NH* 12.1.2–3). Later, Pausanias refers to an island *Seria* in the Red Sea, and reports that some identify the Seres as Ethiopians, while others say they are Indians or Scythians (6.26.9–10), but their brand of silk is well known in the Mediterranean. In Rome, the *Vicus Tuscus*, a street connecting the Forum with the Forum Boarium, was well known for selling luxury items, including silk.⁸ Chinese silk, obtained from the cocoons of larvae produced by the mulberry silkworm *Bombyx mori*, had a competitor in the Aegean world also known at Rome.⁹ This was 'Coan silk' from Greece, which was also celebrated by the Augustan poets, but disappears by the second century AD, probably because of the superior quality of Chinese silk.¹⁰

⁵ Ball (2000: 137–9). For more cautious statements, see Sartre (2000: 656–9) and Young (2001: 190–1).

⁶ Whitfield (2007: 201–13).

⁷ Sen. *Helv.* 16.4; cf. *Ben.* 7.9.5; Tac. *Ann.* 2.33, *vestis serica*; Plin. *NH* 11.78; Caligula: Suet. *Calig.* 52; Dio Cass. 59.12.2, 17.3, 26.10; Elagabalus: HA *Heliogab.* 26; Women: Mart. *Ep.* 68. See also Lucan's *Pharsalia*, where Cleopatra is dressed in silk woven in Sidon, but coming from the Seres in Africa (X.138, 143, 292)! Note also Petron. *Sat.* 119, *vellera Seres*.

⁸ Plaut. *Curc.* 482 and Mart. 11.27.11, with Holleran (2012: 57).

⁹ Initially, Chinese silk was thought to be the product of trees: Ver. G. 2.21; Plin. *NH* 6.54. In contrast, Pausanias is aware silk is the product of an insect (6.26.6–8). See Kästner (2008: 350) for the possible influence of Gandhara on Pergamon in the early Roman Imperial era.

¹⁰ For the *Coaes vestes*, a species of wild silk—probably the *Pachypasa otus*—first mentioned by Aristotle (HA 19.551^b 10) and connected with Cos in the Aegean, see Weber (1969–70:

The impact of substantial quantities of Chinese silk entering the Roman world is reflected in statements by Pliny (*NH* 6.101, 12.84) and Tacitus (*Ann.* 3.53) that the 'luxury' trade with India and China was siphoning off large amounts of Roman currency, creating a trade imbalance with the Far East. The figures have been disputed as purely artificial and unreliable, possibly derived from customs records representing taxes levied on imports without evidence of the quantity of the exports, while others have felt that there was some semblance of reality reflected in the alarm registered by the Roman authors.¹¹ Whatever the case, the statements demonstrate that eastern exotic goods from India and China were being introduced into the Roman world in fairly large quantities.

THE REALITY OF LONG-DISTANCE OVERLAND TRADE

The question remains: how *did* Chinese silk enter the Mediterranean world? The overwhelming emphasis has been on trade by sea, and not by long-distance overland trade.¹² In spite of this tendency, there are indications that the continental overland trade existed simultaneously with sea trade, even if the 'volume and value of maritime trade' may have been more substantial.¹³ In support of the long-distance overland trade between China and the West, it should be emphasized that there are other parallels of such commerce in antiquity. The best-documented long-distance commercial network is the vast string of Assyrian merchant colonies (*kārum*s) and trading stations (*wabartum*s) in c.2000–1750 BC that linked Assur in Assyria to Kanesh in Central Anatolia, a distance of over 1,000 km. More than 25,000 cuneiform tablets document this well-organized and successful trade for gold and silver, including their negotiations with the local authorities, details of their caravans

249–53); Sherwin-White (1978: 378–83); and Panagiotakopulu et al. (1997: 420–9), for examples from Thera in the Bronze Age. For the Augustan poets, see Hor. *Carm.* 4.13.3 and *Sat.* 1.2.101; Ovid, *Am.* 2.298; Prop. 1.2.1; 2.1.6; 4.2.2; 4.5.23; Tib. 2.3.5; 2.4.29–30. The latest reference to *Coas vestes* is Plin. *NH* 11.76–8.

¹¹ Veyne (1979) and Duncan-Jones (1994: 103–12). For refutation of the crisis in Tacitus, see also Rodewald (1976). The statement of Pliny also has been considered a reflection of the Roman moralizing tradition: see Young (2001: 201–7); cf. Parker (2002). For criticism of the statements of Pliny and Tacitus, see Raschke (1978: 623–62), Harl (1996: 309–12), and Walser (2001). For defence of the 'haemorrhage of precious metals', see Casson (1989: 30–1); MacAdam (1989: 290–5); Howgego (1992: 5–6, 12, n. 104); De Romanis (1982–7; 1997a: 120–2; 2006); and MacDowell (2006: 43–53); cf. Nappo, Chapter 17, this volume. In spite of the 'suspiciously rounded figures', credence is found in Pliny's tabulation by McLaughlin (2010: 160–1). For a general discussion of quantification, see Harris (2006: 20–2).

¹² Raschke (1978: 642–50), and followed in most subsequent discussions; cf. Liu (1988: 19), Fitzpatrick (2011: 43–4), and Auyang (2014: 315).

¹³ Beckwith (2009: 259).

and transactions, and correspondence received from the traders' homeland.¹⁴ The Arabian incense route of the first millennium BC was even longer, stretching between Yemen and the eastern Mediterranean ports in Palestine and Phoenicia. The records begin in the mid-eighth century BC, when a recently published cuneiform tablet indicates that a large caravan of 200 camels from Tayma' and Saba in Arabia was operating on the Middle Euphrates, transporting purple-dyed textiles, iron, and alabaster into Mesopotamia, the first signal of trans-Arabian trade.¹⁵ In about 600 BC, a Sabaean merchant from South Arabia was active in Palestine, Cyprus, and the Greek world, facilitating commerce between Yemen and the Levant, and from there into the Aegean.¹⁶ In the early Hellenistic era, Arabs from northern and southern Arabia are attested at Athens, Delos, and Rhodes, a distance as far as 2,500 km from their homeland.¹⁷ At the same time, the Zenon papyri indicate that small camel caravans were transporting mundane goods between Egypt and Sidon, a distance of over 400 km.¹⁸ Such regional trade could possibly serve as a link to intercontinental commercial exchange. In the Roman Imperial era, Pliny's description of the Incense Route between the capital of Thomna in Qataban in South Arabia, and Gaza in Palestine, indicates that the journey of 1,487 miles had 65 stages, essentially one station every 23 Roman miles, of which only a handful can be determined with any certainty, and vast stretches of the route remain *terra incognita*.¹⁹ It should be emphasized that the depiction of a single 'Silk Route' with a steady stream of merchants and caravans is purely a caricature, a voiceless opinion without any advocates.²⁰ The preference is rather for 'Silk Routes', a 'far-flung network of trade routes' between Xinjiang and Eurasia.²¹ In spite of the difficulty in tracking and tracing the routes, there is no reason to doubt that goods were transported long distances by caravans in antiquity.

The contemporary sceptical attitude towards long-distance trade stands in marked contrast to that of a century ago, when the concept of a 'Silk Road' smacked of adventure that drew daring explorers to the Far East. It was their

¹⁴ Veenhof (2010). ¹⁵ Liverani (1992: 111–12).

¹⁶ Bron and Lemaire (2009: 11–29). ¹⁷ Graf (2013).

¹⁸ *P. Columbia Zenon* 2, dated to 259 BC, indicating caravans of two to four camels transporting bricks, dates, reed mats, and pickled meats, and returning with grain.

¹⁹ Pliny, *NH* 12.32. The lengthy stretch between Najran and Medina is virtually unknown, as is most of the route through the Negev between Petra and Gaza. At the time, the Nabataean Arabs were the primary traders who distributed the South Arabian goods in the Levant; see Graf and Sidebotham (2003).

²⁰ Note Erickson, Söng-mi, and Nylan (2010: 136): 'Archaeology attests the frequency, variety, complexity, and intensity of exchanges along the many trade routes subsumed in today's popular imagination under the single term "Silk Road".' Demarge (2010: 134) observes: 'the Incense Road should not be imagined as a single route that went from one place to the next, but, rather, as a web of paths and trails that crossed, intersected, and ran parallel to each other.'

²¹ Falkenhausen (2010: 59).

amazing discoveries that helped tie together East and West. The primary stimulus was provided by Ferdinand von Richthofen (1833–1905), who after travelling in China in 1868–72, began to write extensively about China, and in 1877 coined for the modern era the term ‘Silk Road’ (*Seidenstrasse*).²² But he was not the *creator* of the term: Ammianus Marcellinus already knew in the fourth century AD of a long trade route that led east to the Seres or ‘silk people’ (23.660).²³ In addition, Richthofen also frequently used the plural (*Seidenstrassen*), emphasizing that the trade was an episodic and limited exchange in stages, from hand to hand, not organized long-distance travel by caravans over the whole length and breadth of the lands between China and the Mediterranean.²⁴ His emphasis was also restricted to the Han Dynasty, during which classical sources begin to speak of the Seres with any degree of frequency. The focus of his research was the Taklamakan Desert or Tarim Basin, modern Xinjiang in ‘Inner Asia’. This difficult mountainous and desert terrain became the focus of a host of European travellers exploring Central Asia for evidence of the Silk Road’s existence—Sven Hedin, Sir Aurel Stein, and Paul Pelliot were the most prominent of these adventurous scholars.²⁵ Von Richtofen’s work was also the stimulus for Albert Herrmann’s work on *Die alten Seidenstrassen zwischen China und Syrien* in 1910. After the Sino-Swedish Expedition of 1926–35, Sven Hedin and Folke Bergman popularized the term, symbolized by Hedin’s book (1935), published in translation as *The Silk Road* in 1938. By the time that Luce Boulnois’s book on *The Silk Road* appeared in 1963, the term was already deeply impressed on Western minds.

As a result of their widely separated existence and remoteness, the study of ‘Rome and China’ usually takes the form of comparisons and correlations between the two imperial powers.²⁶ In spite of these vast distances—5,000 miles separate Roman Syria from China—there is evidence of occasional ‘contact’ between the Mediterranean world and the Far East, from both directions, but not of any *sustained* contact.²⁷ The details of any regular overland caravan trade even over segments of the route are difficult to piece

²² Richthofen (1877); see Waugh (2007) for discussion.

²³ *pace* Hansen (2012: 6), who suggests ‘The term “Silk Road” is a recent invention’, crediting Richthofen for coining the term in 1877.

²⁴ Most scholars now use the plural ‘Silk Roads’. Christian (2000: 2–3) emphasizes that the plural ‘Silk Roads’ is important because it conveys ‘a constantly shifting network of pathways for many different types of exchange’. According to Falkenhausen (2010: 63), the ‘Silk Routes’ were ‘a congeries of relays, with goods exchanging hands frequently, becoming more expensive every time’. For a different view, see Beckwith (2009: 328, n. 20).

²⁵ For Stein, see Walker (1995); Wang, H. (2004a); Whitfield (2004). For Stein and Hedin, see Bosworth (1999–2000). For a popular account, see Hopkirk (1980: esp. 54–67 for Hedin, and 68–80 for Stein).

²⁶ For comparative studies, see Graf (2005); Mutschler and Mittag (2008) and Scheidel (2009). For correlations, see Teggart (1939), whose historical similarities appear to be coincidental rather than the product of direct contact.

²⁷ Graf (1996) and McLaughlin (2010).

together from the scattered and fragmentary evidence.²⁸ Furthermore, according to Raschke, the basic problem is that the Chinese in the Han period were devoid of any entrepreneurial impulse and the mercantile profit motive, so the transfer of silk to the West was accidental, the result of tribute gifts and small exchanges, not of long-distance organized commercial enterprises. The real entrepreneurs were Roman traders who obtained silk from the Indian sea ports and transported it by ships back to the Mediterranean world.²⁹ In his opinion, Chinese silk was never an expensive commodity or luxury item. In fact, it was its cheapness that drove the local Coan silk into oblivion. Nevertheless, between the seventh and ninth centuries AD, silk was the primary currency and quality standard for payments at Dunhuang and Turfan, with coinage representing only 10 per cent of the payments.³⁰ Nor is any explanation offered as to why Chinese silk was transported such extreme distances for other reasons than profit, arriving in large quantities without any planning or coordination, and having such a profound effect on Roman society and the economy. Although Raschke contends that mercantile capitalism in Han China is anachronistic, and the overland trade route pure fantasy, there is reason to suspect his characterization of Far Eastern commerce is itself ideologically prejudiced. No one contends that a single ethnic group or state traversed the wide expanses between Syria and China to transport silk in a single caravan, but rather that multiple peoples and types of exchange are responsible.

A fresh reinvestigation of the 'Silk Road' therefore seems appropriate for various reasons, but primarily because pertinent new evidence has emerged that offers a basis for a complex system of multiple commercial exchanges along a transcontinental trade route. What is involved is not a specific 'marked or paved route across Eurasia', but 'a stretch of shifting, unmarked paths across massive expanses of deserts and mountains'.³¹ Of course, substantial gaps and lacunae still exist in our understanding of how the silk trade functioned. In order to explain this dearth of evidence, Christopher Beckwith recently has suggested the 'Silk Road' should be perceived as 'not a network of trade routes, or even a system of cultural exchange', but as an integral part of the 'entire local political-economic-cultural system of Central Eurasia'.³² Further inhibiting any enquiry into the complexity of the 'Silk Road' cultures is the exotic nature of the languages and cultures involved.

In this context, it is possible only to highlight some of the important contributions that have emerged in the past century that illuminate various aspects of the continental overland trade between China and the Roman Empire. I am fully cognizant that this is a subject that should be treated by a myriad of specialists, not a single scholar, but a general overview and summary

²⁸ For an interesting study of the camel in Chinese iconography, see Knauer (1998: esp. 30–43, for the early Han evidence).

²⁹ Raschke (1978: 605–50).

³⁰ Trombert (2000: 107–9).

³¹ Hansen (2012: 5–8).

³² Beckwith (2009: 328).

of the evidence may stimulate more discussion of a topic that is rarely addressed. The focus is limited to the first two centuries of the Common Era, the period from Augustus to the Severan Dynasty, which essentially overlaps chronologically with the Later Han Dynasty. Since some of the new evidence is from the third century AD or later, this diachronic focus will be violated occasionally to draw on indigenous parallels of trade and commerce within this vast geographical expanse.

THE HAN DYNASTY AND THE WESTERN REGIONS

During the Han Dynasty, there was an expansion to the 'Western Regions' and the establishment of a secure line of communications to these distant frontier areas (Fig. 15.1). The primary motives for the expansion are considered to be political and military, marked by the Emperor Wudi's new offensive policy against the Xiongnu, who were disturbing and disrupting the Western Regions. The Han Dynasty's creation of a safe artery around the Taklamakan Desert in the west, to the states in Central Asia and the adjacent countries beyond, has also been regarded as having served as an economic stimulus, producing Chinese caravans that travelled as far as Merv to exchange silk for other exotic goods with the Parthians.³³ In contrast, other scholars like Rashke restrict the westward initiative of the Han government to purely political and military objectives, leading to the suggestion that a paradigm shift is needed.

China's diplomatic relations with the West and the opening-up the Silk Route are normally associated with two embassies to the West during the Former and Later Han Dynasties. The first mission was in the reign of the Emperor Wudi (140–87 BC). This mission had the main objective of driving a wedge between the Xiongnu nomads and the Western Regions, which they had been disturbing and exploiting. The reports of the mission are preserved in chapter 123 of the *Shiji* ('Memoirs of the Grand Historian', hereafter *SJ*) written by Sima Qian in the early first century BC, and the [*Qian*] *Han shu* (chapters 96A and B), (the 'History of the Former Han Dynasty' (220 BC–AD 25), hereafter *HS*), compiled in the first century AD.³⁴ According to these records,

³³ As portrayed in the account of the Silk Road in Thorley (1971: 75–6). More speculative is Manning (2015), who proposes a Hellenistic precursor for Chinese relations with the West.

³⁴ For translations, see Watson (1993: 231–52 (*Shiji* 123)), and Hulsewé and Loewe (1979: 71–203 (*HS* 96A and B) and 205–38 (*HS* 61)); cf. Daffinà (1982). The relationship between the two accounts remains controversial. From Pelliot to Hulsewé, the *Shiji* account has been regarded as contaminated by later additions. In contrast, Pulleyblank (1981) and Leslie and Gardiner (1982) have argued for its general reliability. As Gardiner-Garden (1986: 26), observes: 'In either case a large portion of all the texts goes back to Zhang Qian's report.' For discussion of Zhang Qian's penetration of the Western Regions, see Zhichun Liu (1996), Momiyama (2007), Sugimoto (2007), and Higuchi (2007).

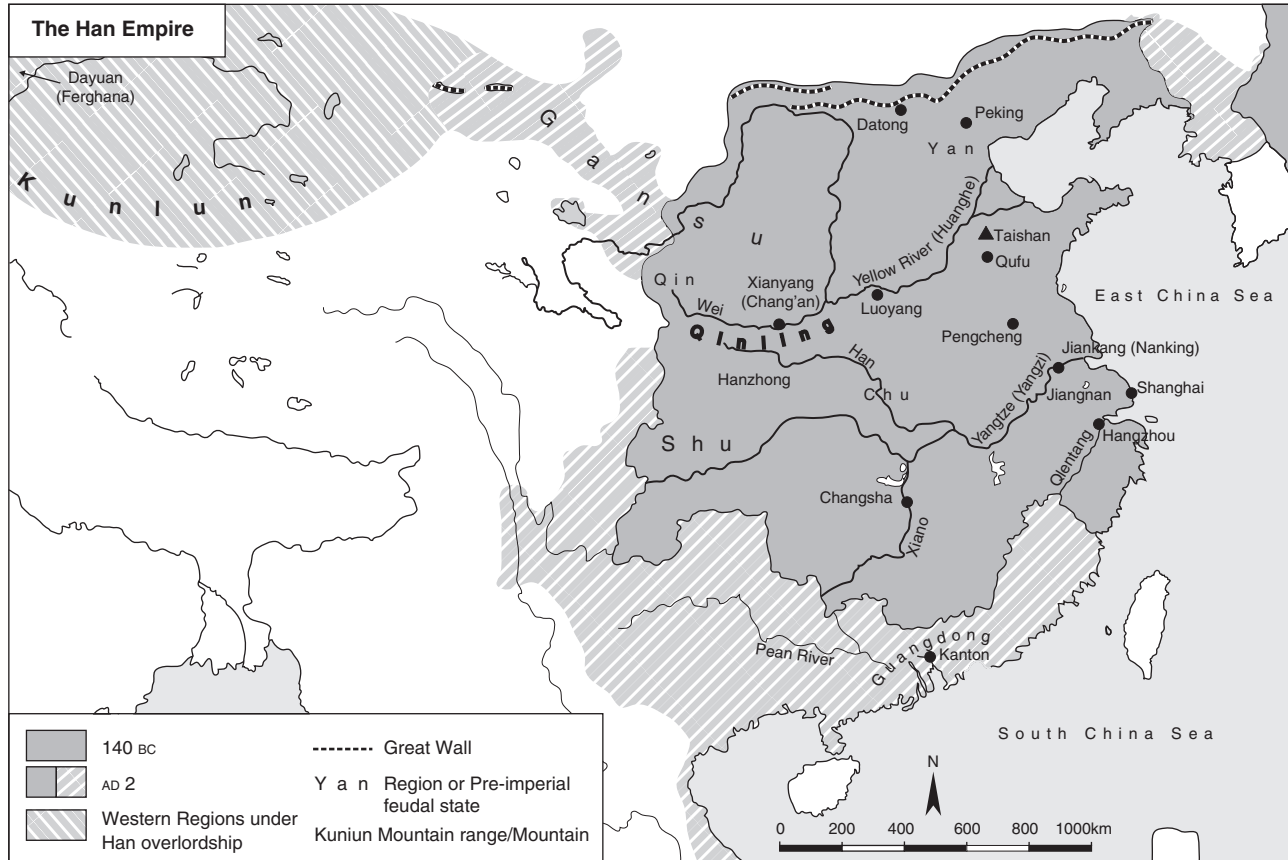


Fig. 15.1. The Han Empire and the 'Western Regions' (after Mutschler and Mittag 2008: 452)

in c.138 BC, the emperor sent Zhang Qian with over a hundred men on an embassy to the Western Regions to cultivate allies among the *Wusun* and *Daxia* (Bactria) to oppose the nomadic empire of the Xiongnu and 'cut off the right hand' of the enemy.³⁵ After a series of difficulties, in 128 BC the embassy finally reached the regions of Sogdiana (*Kangju*) and Bactria (*Daxia*), where the *Yuezhi* (Scythians) now resided, the old enemies of the Xiongnu. Although Zhang Qian's negotiations were unsuccessful, he gathered information about a number of adjacent countries in the West, embodied in his report to the emperor in 122 BC. Later, in c.115 BC, Zhang Qian sent four separate missions to the Western Regions, accompanied by guides and interpreters, and supplied with thousands of cattle and sheep, as well as large quantities of gold and silk. Shortly after his death in 113 BC, they returned with natives from Western Asia, as well as examples of the fauna and flora from the various regions. According to the *HS* 61 report, the countries visited included *Kangju* (Sogdiana), the *Yuezhi* (Scythians), and *Daxia* (Bactria), and then in a second wave *Anxi* (Parthia), *Lijian*, *Tiaozhi*, and *Shendu* (Northern India).³⁶ These were large diplomatic missions, involving hundreds of people, with substantial gifts, and, in each year, six to ten missions were sent to the West.³⁷ Although the primary objective of the missions was to establish political alliances, there are also indications that there was an interest in acquiring exotic goods. In the Western Regions Zhang Qian noticed when he was in *Daxia* (Bactria) the presence of bamboo staves of *Qiang* and the cloth of *Shu* from the Western Regions of China. When he asked how they had obtained them, he was told 'our merchants go and buy them in the state of *Shendu*'.³⁸ In the same passage, *Daxia* (Bactria) and *Anxi* (Parthia) are described as large states with 'rare goods' which prized Han wealth and goods. The *HS* also observes that west of *Dayuan* (Ferghana) as far as *Anxi* (Parthia) there is 'no silk'.³⁹ These comments reveal not only commercial exchanges by merchants in the western provinces of China with Northern India and Bactria, but also that Han interest in the regions was more than political.⁴⁰ Although the primary objective of the

³⁵ The quotation is from Zhang Qian's speech before the mission as recorded in the *Shiji* 123 = Watson (1993: 238). For discussion of the campaigns, see Loewe (1971), Ying-Shih (1986: 405–21), Di Cosmo (2002: 227–52), and Hill (2009: 575–86).

³⁶ *HS* 61, 5b–6a = Hulsewé and Loewe (1979: 219–20). The *SJ* 123 account combines the two missions, including *Anxi* and *Shendu* in the first wave and *Lijian* and *Tiaozhi* in the second = Watson (1993: 239–40).

³⁷ For the 'pacification policy' (*heqin*) of sending goods in tribute to the *Xiongnu*, see Di Cosmo (2002: 215–27).

³⁸ *HS* 61, 2b–3b = Hulsewé and Loewe (1979: 211–12). *Qiang* and *Shu* were on the far western extremity of China: see Loewe (1967: i. 180, no. 72, and map on 181). *SJ* 123 = Watson (1993: 237) describes the *Shu* activities as 'unofficial trading missions.'

³⁹ *HS* 96A, 36A = Hulsewé and Loewe (1979: 136).

⁴⁰ The argument that the main purpose of the western campaigns was a search for new outlets for China's silk surplus, as argued by Stein (1921: i. 406), and Teggart (1939: 148–233), reads too much into the affairs. There is no reliable evidence to support such a hypothesis: see Loewe (1971: 77).

Han campaigns of Wudi in the Western Regions is characterized as primarily political, the establishment of a bloc of allied states on the western frontier against the Xiongnu, the result of 'China's first-ever military expansion westward' was the opening-up of the silk route.⁴¹ The historiography of the Han Dynasty is primarily a state institution dominated by court annals and official sources.⁴² These dynastic histories obscure any commercial impulse by the Chinese, but they reveal they are aware of such mercantile interests in the Western Regions.

Although the details of Zhang Qian's negotiations with the various western states are mainly lacking, the case of *Wusun* is exceptional, providing extensive revealing information about the relations.⁴³ The *Wusun* are located directly east of Sogdiana, but allegedly formerly occupied the area just west of Dunhuang. The mission of Zhang Qian in c.118–115 BC was to persuade them to return to their former homeland by providing 'gold and valuables' and a possible marriage alliance with a Han princess. The king of the *Wusun* rejected the offer, but escorted Zhang Qian back to China with a gift of horses for the emperor. When the *Xiongnu* and others expressed concern about his negotiations with the Han, the *Wusun* king changed his mind and offered 1,000 horses as a marriage gift. The princess Xijun was then sent to the *Wusun* king with imperial carriages, wearing apparel, and equipment, and an official staff of eunuchs and servants. The princess created her new royal residence and once or twice a year arranged a banquet where she distributed to the *Wusun* nobles 'valuables and silk'. The Han emperor sent her every other year envoys with supplies of drapes, brocades, and embroideries. Much later, when the *Wusun* provided 5,000 cavalry for a conflict with the *Xiongnu* (c.71–64 BC), the nobles were rewarded with 'gold and valuables'. In c.64 BC, the princess of the *Wusun* sent her daughter back to China, but at *Qiuci* (Kucha, north of the Taklamakan Desert), she decided to marry the *Qiuci* king. The emperor treated her in similar fashion to her mother: she was sent imperial carriages 'with patterned silks, embroideries, variegated silks and precious gems'.⁴⁴ The same general policy seems to be applicable to the more distant western states. Elsewhere we are told that Zhang Qian was equipped for his western mission with 'gold, valuables and silk *which were worth an enormous amount*'.⁴⁵ The states specified are *Dayuan* (Ferghana), *Kangju* (Sogdiana), and the *Yuehshi*,

⁴¹ Falkenhausen (2010: 62).

⁴² See Mittag (2008: 143–65); cf. Falkenhausen (1993: 840).

⁴³ The lengthy account is in *HS* 96B, 1A–8A = Hulsewé and Loewe (1979: 143–62). For discussion of the *Wusun*, see Gardiner-Garden (1986: 28–40), who identifies them with Ptolemy's 'Asmiroi' (*Geog.* VI.16.2–6) and the 'Asmirrae' of Ammianus Marcellinus (23.6.66). Along with the *Yuehshi*, the *Wusun* are considered 'Tocharian' speakers: see Pulleyblank (1983: 458, with references). For their location, see Di Cosmo (2002: 96, n. 106).

⁴⁴ *HS* 96B, 21A = Hulsewé and Loewe (1979: 175–6; emphasis added).

⁴⁵ *HS* 61, 5A = Hulsewé and Loewe (1979: 218).

with the *Wusun* providing interpreters and horses. After Zhang Qian's death (by 113 BC), the *Shiji* account adds, among others, the far western countries of the *Anxi* (Parthia), *Tiaozhi* (in the region of the Persian Gulf), and *Shendu* (India).⁴⁶ In contrast to Raschke's contention that silk was valueless, these accounts indicate it was a luxury commodity comparable to gold and other valuables, and used to secure horses from the *Wusun*, whose horses were valued as much as the 'heavenly horses' of Ferghana. It also appears to have been distributed among the nobles of the western states, and was the prized possession of the Han imperial family.

As for the identification of the states of *Tiaozhi* and *Lijian*, their location remains problematic.

According to the *HS*, they are located 100 days' journey west of 'Alexandria' (either in Heat or Kandahar in Arachosia), which is not very helpful, but in the *Shiji* they are located several thousand *li* west of *Anxi* (Parthia), bordering on the Western Sea.⁴⁷ It is now generally accepted that *Tiaozhi* represents the area of southernmost Babylonia and that the name may be derived from the 'Tigris'.⁴⁸ In the *HHS*, centuries later, it seems clear that *Tiaozhi* now refers to the 'Arab' kingdom of Characene or Mesene, located at the mouth of the Tigris. *Lijian* remains more troublesome, and the proposals have been many, from Nabataean Petra, to Alexandria, to the 'Seleucid' Empire. The identification with either Alexandria or the Seleucid Empire is problematic. The general pattern for transcribing foreign names in early Chinese is to represent the first two syllables by Chinese characters, presenting a serious problem for the 'Alexandria' and 'Seleucid' proposals.⁴⁹ Equally problematic is the attempt to connect *Lijian* ('Seleucia' on the Tigris) and *Tiaozhi* ('Antioch' in Syria) with the western and eastern parts of the Seleucid Empire.⁵⁰ This hypothesis is not compelling, as at the time of Zhang Qian's mission in 138–126 BC, the Seleucid Empire was a truncated and disintegrating state, hardly representing an attractive ally for the Han Empire. On the other hand, the Nabataeans of Petra were an expanding state in the late Hellenistic period with a sizeable

⁴⁶ SC 123 = Watson (1993: 240).

⁴⁷ HS 96A, 27b = Hulsewé and Loewe (1979: 112–13); SC 123 = Watson (1993: 23) and Hirth (1917: 97).

⁴⁸ Graf (1996: 203), discussed sympathetically by Hill (2009: 218–20). For previous suggestions, see Hulsewé and Loewe (1979: 113, n. 255), who suggests 'Taoke', near the port of Bushire on the Persian Gulf, but this site appears too specific and obscure for the designation: see Pulleyblank (1999: 74). At sometime in the early Seleucid period, the southern shores of Babylonia were organized into the 'Satrapy of the Erythraean Sea', the later Kingdom of Characene or Mesene with a capital at Spasinou Charax: see Potts (1990: 18, 324–7).

⁴⁹ Pelliot (1915: 690–1) argues for 'Alexandria' in Egypt, but *Wu-i-shan-li* in the Han accounts is clearly a transcription of 'Alexandria' in Asia: see Pulleyblank (1962: 101, 125), and Hulsewé and Loewe (1979: 118).

⁵⁰ See Leslie and Gardiner (1996: 253–4), for *Li-Kan/Tiaozhi* as '[Se]leuk[ia] = Antiochia'. Rejected by Pulleyblank (1999: 73–5), among other reasons, because *Tiaozhi* and *Lijian* appear independently in the *HS* and *SJ*.

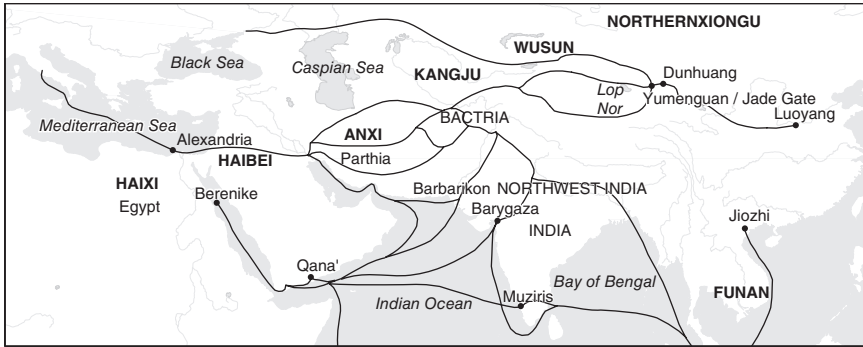


Fig. 15.2. The Han Empire and the West

(map by Chris Hanson, after Hill 2009: 690)

territory, and ties to Characene in southern Babylonia.⁵¹ As a result, the case for Chinese *Lijian* transcribing *Rekem* (the Semitic name of Petra) remains attractive.⁵² Whatever the case, Zhang Qian's fact-finding mission provided the first information about the distant western countries in Asia.

Finally, after a successful campaign against the *Xiongnu* in 111 BC, a number of commanderies were created on China's western borders to provide a direct line of communication with *Daxia* (Bactria), and expand and develop the routes to the West, including the establishment of a fortification system to protect the western links.⁵³ Afterwards, ten diplomatic missions were sent annually to the Western Regions. This exposure to the wealth of the Western Regions had a negative impact on the Chinese envoys, who began to sell their official goods 'cheaply' for private profit.⁵⁴ As a result of the Han missions to the West, it may be surmised that large quantities of silk were finding their way into the hands of profiteers in Sogdiana, Bactria, Parthia, and India (Fig. 15.2).

The response of the Western Regions to the Han diplomatic initiatives was the sending of a large number of foreign embassies to China. The first Parthian caravan arrived at the Han court c.100 BC, with a gift of 'large birds'

⁵¹ Pliny, *HN* 6.145, mentions the Nabataeans at Petra trade with Forat on the Tigris, a town subject to the king of Characene.

⁵² Proposed initially by Hirth (1885: 171), accepted by Chavannes (1907: 179 n. 6), and then abandoned by Hirth (1917: 144), without explanation. Revived in Graf (1996: 207–10). Hulswé and Loewe (1979: 118) objects that the second Chinese character ends in *n* rather than *m*, but this is true for *Fan-fu* = Bambyke, and *Fu-lin* = Rome, both correlations generally accepted by Sinologists. See Hirth (1885: 289). Note also that the second character in *Lijian* is irregular, with variants *kian*, *khan*, and *jian*. See Pulleyblank (1999: 74, n. 2) and Hill (2009: 256–7).

⁵³ *SJ* 123 = Watson (1993: 240) for the north-west route, but perhaps also for the west.

⁵⁴ *HS* 61, 6b–7a = Hulswé and Loewe (1979: 220–2). The *SJ* 123 adds that 'the envoys were all sons of poor families' who sold the foreign goods for profit after returning to China = Watson (1993: 242). The *HS* (91, 3687) also indicates the merchants in the Western Han capital at Chang'an had stocks of furs from Central Asia in their stores; see Liu (1988: 16).

eggs and conjurors'.⁵⁵ There seems to have been mutual respect between the Parthians and the Han at this time, each representing the largest states in the East. When the Han envoys arrived at the eastern frontier of Parthia, the king met them with 2,000 cavalry to escort them to the capital, passing through dozens of large cities on the journey. When the Han envoys prepared to return, a Parthian embassy travelled with them back to China. In China, the Emperor took the Parthian foreign visitors to the sea coast, where he showered them with gifts of money and silk, impressing on them the wealth of the Han empire.⁵⁶ This diplomatic behaviour stands in contrast to the disrespectful way the minor states between their empires had received the Han embassies. There were clearly problems along the routes to the West. Distant *Jibin* (Gandhāra, Kashmir) harassed and killed envoys.⁵⁷ Even less remote states like *Dayuan* (Ferghana) were guilty of killing envoys, precipitating a four-year Han military campaign against the state that ended in 101 BC, and much nearer Loulan in the Tarim Basin harassed and robbed Han envoys before 108 BC, requiring an expedition against the oasis that resulted in the capture of the king and the taking of hostages.⁵⁸ By 77 BC, Loulan had come under Han military domination, the king had been captured and decapitated, and the name of the oasis changed to Shan-shan.⁵⁹ In addition, in 72–71 BC the Xiongnu suffered a defeat by the Han and its allies, securing the Western Regions for the Han.⁶⁰ It is interesting that almost immediately thereafter, in 68 BC, the Parthians and *Dayuan* (Ferghana) were sending embassies to Loulan.⁶¹ The *SJ* suggests that, although the states from *Dayuan* to *Anxi* spoke different languages, their customs were similar and their languages mutually intelligible, and all the states in the region were 'skilled at commerce', with *Dayuan* 'overflowing with Han goods'.⁶²

⁵⁵ *HS* 96A, 30b = Hulsewé and Loewe (1979: 117–18) and *SJ* 123 = Watson (1993: 243). The account in *HS* 61, 7b = Hulsewé and Loewe (1979: 223–4) indicates only embassies from 'Dayuan [Ferghana] and other states', without specifying *Anxi*. The text must be corrupt, as observed by Hulsewé and Loewe (1979: 224, n. 848), perhaps confused with *HS* 61, 8a = Hulsewé and Loewe (1979: 225), which mentions embassies sent to 'Dayuan and the states to the west'. The date of the Parthian embassy to China is disputed: Needham and Ling (1965: 191), 120 BC; Loewe (1967: i. 53), 'sometime between 110 and 100 BC'; Watson (1993: 542) and Pulleyblank (2002: 424), '106 BC'; Leslie and Gardiner (1996: 139), 'c.100 BC'.

⁵⁶ *SJ* 123 = Watson (1993: 244).

⁵⁷ *HS* 96A, 25a = Hulsewé and Loewe (1979: 107).

⁵⁸ For Dayuan, see *SJ* 123 = Watson (1993: 245–51). For Loulan, see *SJ* 123 = Watson (1993: 242) and *HS* 96A, 11b = Hulsewé and Loewe (1979: 85–7).

⁵⁹ *HS* 96A, 10a, 13a = Hulsewé and Loewe (1979: 81, 89–90). The transport to Tun-hunag of the head of the king of Loulan is recorded on a wooden strip document from *Juyam*: Loewe (1967: i. 66). Note the Chinese military documents discovered by Stein at Tower VI dating between 68 and 56 BC: *CD*, nos 9–35, 37–58, 255–70.

⁶⁰ Yü (1986: 410–11).

⁶¹ *HS* 70 = Posch (1998: 360 (2.2.4)).

⁶² *SJ* 123 = Watson (1993: 245).

The Han initiative also brought about new institutions. By 60/59 BC, the Han state had created the office of 'Protector General of the Western Regions', installed military colonies in the west, and initiated regular payments in silk to tributary states, including the Xiongnu.⁶³ In addition, the officers and soldiers in the newly created military colonies in the West were also paid in silk.⁶⁴ Large quantities of silk were flowing to the Western Regions, and Han expansion facilitated communication with the outlying regions. By c.25 BC, *Jibin* (Gandhāra, Kashmir, and upper Indus basin) was sending embassies regularly to China, although the Han officials were aware they were composed not of either royal family or nobles, but of 'merchants and men of low origin', who wanted to exchange goods and trade, 'under the pretext of presenting gifts'.⁶⁵ In 11 BC, the protector general warned also about the arrogant envoys of *Kangju* (Sogdiana), who came to the Han court, desiring only to trade, but cleverly disguising it in deceptive words.⁶⁶ Nothing much had changed since the Han initiative to the West had begun a century earlier, and Zhang Qian advised the Emperor that 'barbarians love their old homelands and are also greedy for Han goods'.⁶⁷ Afterwards, the Later Han Dynasty (AD 20–70) abandoned these policies, and the *Xiongnu* again made inroads into the Western Regions.

In concert with the Han Chinese push to the Western Regions, there also was an imperial thrust to China's South Sea (*Nanhai*) and into South-East Asia. The account of these affairs is enmeshed in a much discussed and controversial section of the (*Qian*) *Han shu*, composed sometime around AD 80–100. The narrative is problematic, containing enigmatic toponyms and suspected interpolations. The first commentator on the passage, Paul Pelliot, ignored these problems, and acutely asserted that the passage recorded that 'une mission chinoise parcourut tout l'Océan Indien'.⁶⁸ What is described are really two distinct missions, with different itineraries.⁶⁹ The first episode preserves an embassy sent by the Han emperor Wudi (140–87 BC) by sea to the region of the Huangzhi. The envoys were composed of chief interpreters who took 'gold and various silks' to purchase 'bright pearls, glass, rare stones, and other exotic items'. The ships of the Han commandery probably left

⁶³ Yü (1986: 394–8 (esp. 397 and table 10), and 411). The Han tributary system included imperial gifts to the *Xiongnu*, which increased between 51 and 1 BC from 1,600 catties of silk floss to 7,500, and from 8,000 silk bales to 30,000. This reflects the dynastic decline of the last few decades of the first century BC. See Loewe (1971: 77).

⁶⁴ See Loewe (1967: ii. 100–3) for payment in silk rolls to military officials.

⁶⁵ HS 96A, 26a = Hulsewé and Loewe (1979: 109).

⁶⁶ HS 96A, 34b = Hulsewé and Loewe (1979: 128).

⁶⁷ HS 61, 5a = Hulsewé and Loewe (1979: 217).

⁶⁸ Pelliot (1912b: 461).

⁶⁹ HS 28 B, 32 a–b. Translations after Pelliot (1912b: 457–9), include Gungwu (1958); Wheatley (1957: 115–16; 1961: 8–9); Yü (1967: 172–3); Ray (1990–1: 1–4, followed with analysis and commentary of the text, 4–34); Ptak (2007: 86–7); and Wade (2013). Chakravati (1972) was unavailable.

Jiaozhi (modern Vietnam) from the mouth of the Red River (near modern Hanoi) and sailed south around Rinan (Central Vietnam), where foreign merchant ships (*manyi guchan*) guided the Han fleet around the Peninsula and through the Indian Ocean to the land of Huangzhi.⁷⁰ It is generally assumed that there was a crossing of the Malay Peninsula or a sailing around its neck into the Bay of Bengal. The Huangzhi have been located at or near Kanchi(puram) in south-east India⁷¹ or the Kingdom of Vanga in the southern part of the Bay of Bengal.⁷² The second episode involves a later embassy in the time of the Emperor Pingdi (AD 1–6) sent by his regent Wang Mang, with ‘rich presents’ to the king of the Huangzhi, which also requested he send in response a gift of a rhinoceros as tribute to the Han court. The first embassy in 110–87 BC was primarily by land and took over a year. The second, by sea, took about sixteen months. On the basis of the second enterprise, it appears the Chinese commandery at Rinan is connected with maritime routes to South-East Asia and southern India. But these relations appear to have been temporary, as Chinese sources reflect no detailed knowledge of the peoples of the South Sea until the third century AD.⁷³ The *PME* indicates that, at the Ganges, ‘cotton garments of the very finest quality’ were available, perhaps a brand of the local variety of silk.⁷⁴ But the ‘rich gifts’ of the second Han mission must have included silk, as in the first mission, the earliest record of it being exported by sea to South-East Asia and India.

The dissonant voice about the authenticity of the *Han shu* account of these Chinese missions to South-East Asia and India is Raschke, based on the lack of finds of Chinese imports in Indonesia and India until the Tang Dynasty.⁷⁵ But recent archaeological evidence is now beginning to alter this picture, with Han imports appearing in North Vietnam and India suggesting contact and trade

⁷⁰ Gungwu (1958: 22–3) observes the ‘eunuch interpreters’ were probably slaves from the southern provinces, and that the ‘foreign merchant ships’ were probably from the Bay of Bengal. The two ports of Xuwen and Hepu mentioned south of Rinan were identified by Pelliot (1912b: 457, n. 1), with two sub-prefectures on the south China sea coast of Guangdong; cf. Wheatley (1957: 115, n. 2, with 1961: 9, fig. 8, a map of the possible itineraries and locations).

⁷¹ See Gungwu (1958: 22); Yü (1967: 173); Wade (2014: 25) for Kanchi = modern Conjeevaram.

⁷² Ray (1990–1: 24–6; cf. 2006); Salles (2007, forthcoming).

⁷³ Wheatley (1955; 1961: 14–25); cf. Yü (1967: 176, n. 15). Gungwu (1958: 29–30) notes the fall of the Former Han empire in AD 9, which also brought the collapse of the southern commanderies.

⁷⁴ *PME* 63, the cotton garments called ‘Gangetic’. Bengal was also the main source of indigenous silk, produced by the Tasar moth and Eri worm native to north-east India, and may have been confused with linen or cotton: see Varadarajan (1988: 565–7). *PME* 64 indicates that ‘silk floss, yarn, and cloth’ from China were shipped from an inland city called Thina via Bactria to Barygaza and via the Ganges River to Limyrike on the Malabar Coast in south-west India.

⁷⁵ Raschke (1978: 653–4) regarded the ‘widely accepted’ account as controversial because of the baffling toponyms, but the directions and destination of the missions seem clear.

along the maritime route connecting South China with South-East Asia and India.⁷⁶ Literary sources reinforce these contacts and commerce between South-East Asia and India in the first few centuries AD. The legendary account of the foundation of the Funan Dynasty is preserved in the record of a Chinese mission to Vietnam in the third century AD, which indicates the first king of Funan migrated there earlier from India in the first century AD, and another Chinese account records a voyage by a Chia Hsiang-Li from China to South-East Asia, and Chinese ships are reported sailing between Funan and the Bay of Bengal.⁷⁷ In addition, Ray contends that substantial numbers of Indian merchants were present between Yongchang in Gansu to Yunan in the south-west of China by the end of the first century AD.⁷⁸ Sometime later, a merchant from the country of 'Kang' (Sogdia) is attested in the Tonkin Delta of Jiaozhi (northern Vietnam) in the early third century AD, whose ancestors had earlier resided in India for several generations.⁷⁹ These sources reflect the early commercial activity between South-East Asia and India and offer support for the credibility of the *Han shu* account of the voyages between South China and India. This Han initiative to South-East Asia complements Zhang Qian's overland mission to the Western Regions.

The second great Han initiative began with the general Ban Ch'ao's appointment as 'protector of the Western Territories' (AD 91–101), when the entire Tarim Basin came again under Han control, governed by a string of forts along the routes leading west, and garrisoned with indigenous recruits. In AD 97, Ban Ch'ao sent his adjunct Gan Ying west this time with the express purpose of making contact with *Tiaozhi*, to the east of *Anxi*, and the world of *Da Qin*. This is the first reference in Chinese sources to *Da Qin*, which is generally identified with the Roman Empire. The fact that the initiative came from the regional commander Ban Ch'ao, and not the Emperor at the imperial court in Lo-yang, explains why it is regarded as a minor event in contrast to

⁷⁶ See Li (2011: 39–44) for first-century AD imports from the Han commandery of Jiaozhi (north Vietnam), the 'imperial jewel'. Borell (2011: 53–66) tracks the locally produced potassium/potash glass from excavations of tombs in Guangxi Province (notably in the Wang Mang interregnum of AD 8–25) in south China through Vietnam and Arikamedu (India), and also Han 'ear' spools along the maritime route between south China and India. For the glass bead trade, in South-East Asia and India, see Lee (2009: 172–80).

⁷⁷ The primary discussion of the Funan legend of 'Kaudionya' remains Pelliot (1903: 251, 257–66). See also Gungwu (1958: 31–4), and Coëdès (1964: 36–8). For a critical analysis of the foundation legend, see Vickery (2003–4: 101–10), who at 104 accuses Pelliot and Coëdès as viewing Funan and South-East Asia 'through Indological spectacles'. This seems too harsh a criticism of Pelliot, whose 'knowledge of text and context was hardly ever at fault', to quote Wheatley (1961: 5). The account suggests Funan and the Indians were unknown to each other at the time. For Chinese ships sailing west into the Bay of Bengal, see Jahan (2006: 164), with Needham (1971: 449).

⁷⁸ Ray (1994: 32–40). See Salles, Boussac, and Breuil (2002).

⁷⁹ Chavannes (1909: 199–200), with Grenet (1996: 3 and n. 5).

the earlier mission of Zhang Qian.⁸⁰ In addition, the mission was unsuccessful: Gan Ying only reached *Tiaozhi* (Characene, Mesene) on the western borders of Parthia. At this point, the local sailors discouraged him from making the lengthy and dangerous sea voyage to *Da Qin*, and he abandoned his mission and returned back to China.⁸¹ In addition, the *HHS* account adds that the king of *Da Qin* wanted to send envoys to Han, but *Anxi* (the Parthians), wishing to control the trade in 'multi-coloured Chinese silks, blocked the route to prevent [the Romans] getting through [to China]', but this may only mean that communication between Rome and Parthia was severed at the time.⁸²

Nevertheless, during his visit to *T'iao-chih*, Kan Ying managed to gather a fairly detailed description of *Da Qin* and its dependent states. Since the Han general's father Ban Biao with his elder brother Ban Gu and his sister Ban Zhao also compiled the (*Qian*) *Han shu*, in which the earlier mission of Zhang Qian to the West was recorded, we owe our knowledge of the earliest geographical descriptions of the far Western Regions to the same eminent Chinese family.

The *HHS* description of *Da Qin* has some realistic details, but also some fantastical ones that reveal that the world west of Parthia remained remote and unexplored. According to this account, *Da Qin* has over 400 walled cities, with roads marked by postal stations and whitewashed milestones. The kings rule by merit, and are advised by thirty-six generals. The people trade with *Anxi* (Parthia) and *Shendu* (India) by sea, enjoying a profit margin of ten to one.⁸³ But most are farmers, cultivate silk, shave their heads, and resemble the people of the 'Middle Kingdom' of China. To the West of *Da Qin* is 'Weak River' (*Ruoshui*), 'Shifting Sand' (*Liousha*), and the residence of *Xiwangmu* (the 'Queen Mother of the West' and dispenser of immortality), where the sun sets.⁸⁴ As these details and the name *Da Qin* ('Great China') suggest, the world of *Da Qin* was an idealized 'Han China', intermixed with mythological details

⁸⁰ The reference to Gan Ying's mission in the *HSS* 88 is preserved only briefly in the *Anxi* (Parthian Section). See Hirth (1885: 39, D 19–20); Chavannes (1907: 177–8); and Hill (2009: 23–7, 481–3). The mission is also referred to in other Chinese sources, assembled and translated in Leslie and Gardiner (1996: 142–3).

⁸¹ *HHS* 88.20 (Hirth) = Hill (2009: 23): the sailors indicated the ocean was huge; if the winds were favourable, the trip to *Da Qin* was but three months, but if the seas were rough it could take two years. See Leslie and Gardiner (1996: 147–8).

⁸² *HHS* 88.32 = Hirth: 'communication'; Hill (2009: 27), 'blocked the route', who adds, at p. 240, that the Da Yuezhi and Romans were trying to break the stranglehold the Parthians had on the trade route, and their monopoly of silk and the heavy taxes imposed by them. This probably argues too much, as Roman Red Sea trade to the ports of India provided silk according to the *PME* (see below). Leslie and Gardiner (1996: 145–6) assign this section of the *HHS* to the later 'Roman' An-tun (*Andun*) mission in AD 166.

⁸³ *HHS* 88.27–8 (Hirth) = Hill (2009: 27). The exchange rate of ten silver coins for one gold one seems to be seen by the *HHS* as equivalent to the tenfold profit made by *Da Qin* with its trade with *Anxi* (Parthia) and *Tianzhu* (north-west China), hardly suggesting any monopoly or heavy taxes imposed by the Parthians.

⁸⁴ For an extensive excellent study of the 'Queen Mother' in the Han period, see Knauer (2006: 62–115, esp. 62–5). See also Leslie and Gardiner (1996: 273–5).

of an enchanted paradise on the western periphery of the world, projected from *Tiaozhi* and *Lijian* of the *SJ* and *HS* now to the expanded world Gan Ying investigated.⁸⁵ The unknown western extremities eventually became a Taoist utopia, a fictitious religious world, divorced from reality.⁸⁶ These mythological elements prohibit any firm degree of confidence in phonetic correlations in Han Chinese with toponyms and ethnics for peoples in the West.⁸⁷ The separation of the actual world from the imaginary one in the Han accounts of the West is a problem. The Han perceptions of the Roman world reflect the derivative nature of the information and the lack of any real contact with the Mediterranean world. To the Romans, the Chinese were the *Seres*, the 'silk people', identifiably different from themselves, but by contrast the Chinese accounts depict the Romans as if they were Chinese, cultivating their own silk worms, and producing silk cloth of many colours.⁸⁸

The initiative of Ban Ch'ao in the Western Regions was also a stimulus to Chinese merchants. In his attack on Yanqi (Karashahr) in AD 94, he was accompanied by a large contingent of merchants in his army.⁸⁹ His elder brother, the historian Ban Gu and author of the *HS*, requested that he purchase wool blankets and rugs during his expedition, as did a minister in the court, who desired wool blankets, horses, and styrax from the Western Regions, which were paid for by bolts of silk.⁹⁰ In addition, the soldiers guarding the watch towers on the Central Asian border were involved in trade.⁹¹ This renewal of the Han initiative to the Western Regions in AD 73 also precipitated the return of foreign embassies to the Han court. The Parthians (*Anxi*) sent an embassy to the Han court in AD 87 with a gift of lions and gazelles, and again in AD 101, with more lions and some ostriches.⁹² In addition, between AD 89 and 105, India (Sind, Shendu or *Shen-tu*) also sent a number of embassies to the Han court bearing tribute and various gifts, and, after a hiatus, resumed again in AD 159 and 161.⁹³ In AD 120, the king of *Shan* (Burma) forwarded an embassy with musicians and jugglers to the Han court, who allegedly identified themselves as being from the 'west of the sea' (*Haixi*)—that is, from *Da Qin*. In the celebration of the New Year in AD 121, these same musicians performed at the Han emperor's court.⁹⁴ In the *Da Qin*

⁸⁵ First emphasized by Shiratori (1956; published in Japanese in 1931); cf. Raschke (1978: 854, n. 849); Graf (1996: 199–200); Leslie and Gardiner (1996: 273–8); Hill (2009: 254).

⁸⁶ Maspero (1967).

⁸⁷ Gardiner-Garden (1986: 79) points out that the same is true of Chang Chi'en's earlier account of the West for names such as *Kangju*, *Daxi*, and *Dayuan*.

⁸⁸ Schwartz (1986); Leslie and Gardiner (1996: 225–8).

⁸⁹ *HHS* 47, 1581, cited in Liu (1988: 16) and Hill (2009: 5).

⁹⁰ Liu (1988: 16), citing Ch'üan Hou-Han Wen 25, 4a. ⁹¹ Yü (1967: 95).

⁹² *HHS* 88 = Hill (2009: 23); cf. Hirth (1885: 39, D17) and Chavannes (1907: 177–8).

⁹³ *HHS* 88 = Hill (2009: 31), Chavannes (1907: 193–4) and Leslie and Gardiner (1996: 152–3).

⁹⁴ *HHS* 86 = Hirth (1885: 37 C 2–4) and Leslie and Gardiner (1996: 150–2).

section of the *Wei-lüeh*, in AD 134 the king and minister of *Shule* (Kashgar) presented to the Han court a golden girdle with blue stones (lapis lazuli) from *Haixi* ('west of the sea').⁹⁵ Any of these embassies could have imparted information about the western countries beyond Parthia. As we will see in what follows, the reverberations of the Han outreach to the Western Regions have left traces also in the archaeological and epigraphic remains of the region.

THE WESTERN REGIONS: FROM THE TAKLAMAKAN DESERT TO GANDAHARA

Evidence of activity of merchants along the 'Silk Road' is scattered and sporadic, but significant contact was made between China's western frontier and North India. This consists mainly of correspondence, archival records, and a few private documents and graffiti, but all reflect traffic along an east-west route, and will be summarized accordingly from China to India. It should be emphasized there are *no* indications of large quantities of silk moving by large caravans across established permanent routes. It rather consists of regional exchanges and movements by merchants across segments of the vast landscape. This inter- and intra-regional trade must have been diverse, but included purchases and movement of silk from China to the West. After the collapse of the Han Dynasty, Sogdian merchant colonies were established in China, superbly illuminated by Vaissière's excellent study.⁹⁶ More recent evidence also has emerged that indicates that, even before AD 300, Sogdians began to expand eastwards from their homeland in modern Uzbekistan and Tajikistan all the way to China, creating a virtual commercial empire. In spanning most of Eurasia, they dominated Central Asian trade till about AD 1000, so that the 'Silk Road' was known as essentially the 'Road to Samarkand'.⁹⁷ The earliest finds once consisted only of some suggestive correspondence on the western frontier from the early fourth century AD, but now even earlier documentary evidence has emerged of Sogdian activity within China itself.

1. The Sogdian Letters

The most important early evidence of their activity continues to be Sir Aurel Stein's amazing discovery (in 1907) of an abandoned 'mailbag' in a rubbish

⁹⁵ *Wei-lüeh* = Hirth (1885: 72 P 48); Leslie and Gardiner (1996: 152 and 65) for the date before AD 227 of this 'longest and most important section on Da Qin' in Chinese sources.

⁹⁶ Vaissière (2005: 56–70), with Rong (2000); cf. Hansen (2012: 113–40).

⁹⁷ Hansen (2012: 7), or the 'Road to Khotan', depending on the time and circumstances.

dump in a corridor of the barracks of a watchtower that guarded the western frontier wall on the Dunhuang *limes* between China and Central Asia and some 1.2 km from the desert route between Dunhuang and Loulan.⁹⁸ It contained five neatly folded Sogdian paper letters and some fragments of three others. Each of the intact letters has the name of the sender and addressee written on the outside. Two were written in Dunhuang, another in Kutsang, and another one (wrapped in silk) was addressed to someone in Samarkand, 2,000 miles to the west. The letters were unopened, perhaps discarded after being confiscated by the Chinese military authorities.⁹⁹ It is clear now that they date approximately to between AD 307 and 313, based on events mentioned in the letters.¹⁰⁰

It was assumed this correspondence is from Sogdian merchant families located on the Silk Route.¹⁰¹ Two of the letters (I and III) are from destitute women in distress, abandoned in Dunhuang. Letter II is from a Sogdian agent in Gansu to his partner and perhaps sponsor in Samarkand, and indicates that circumstances are severe: the Sogdian merchants are destitute as a result of a famine. No Sogdian has come from 'inside' China in three years, and a caravan from Guzang arrives too late to help a community of Indians and Sogdians who had starved to death. Letter V concerns the chief merchant Aspandhat, apparently a small-time caravan leader, who is informed that a shipment of 'white' (lead powder?), pepper, and silver is ready for dispatch.¹⁰² Letter II adds as goods 'linen cloth and woollen', and refers to a hundred Sogdian 'freemen' from Samarkand in one colony, forty more in another colony, populated by both Indians and Sogdians residing at Loulan.¹⁰³ The Indian loanwords associated with trade that appear in the Sogdian letters also demonstrate the intimate connections and interactions between the Sogdian and

⁹⁸ Stein (1921: ii. 671–7), for the find at T.xiii.a.ii.1–8. For a map of the location, see Grenet, Sims-Williams, and Vaissière (1998: 99). For discussion of the 'ancient Letters', see Grenet and Sims-Williams (1987) and Sims-Williams (1996; 2000).

⁹⁹ Grenet and Sims-Williams (1987: 102–4), who point out that more than 700 Chinese documents were found with the Sogdian letters, 100 of which are dated, all but two to the period between 98 BC and AD 94; cf. Sims-Williams (1996: 47).

¹⁰⁰ The events are described in Letter II and the dates proposed by Henning (1948) are now generally accepted. See Sims-Williams (2000: 7), who dates Letters III–V to 313/314. For translation and discussion of the letters, see Vaissière (2005: 43–60). Translations of Letters I–III and V by Nicholas Sims-Williams are available on the Internet at <<http://depts.washington.edu/silkroad/texts/sogdlet.html>> (accessed 22 March 2017). For his edited versions with commentary, see: I (Sims-Williams 2005), II (Sims-Williams 2001), III (Sims-Williams 2004), and V (Grenet, Sims-Williams, and Vaissière 1998).

¹⁰¹ As early as 1912, Paul Pelliot proposed that the Sogdians dominated medieval Silk Road commerce in long-distance trade with China: see Pelliot (1912a) with Skaff (2003); Stein's documents pushed the start of that activity to an even earlier stage.

¹⁰² Letter V, 8–10, and discussion in Grenet, Sims-Williams, and Vaissière (1998: 100).

¹⁰³ Letter II, 19–20, 23–8, 37; cf. Sims-Williams (2000: 7).

Indian merchants.¹⁰⁴ In the fragmentary letter VI, a request is made to purchase some 'silk', the *only* mention of silk in the documents.¹⁰⁵ But numerous fragments of coloured silk were found elsewhere in the excavations of the watchtower, including a piece of silk with Kharoṣṭhī script alluding to an event in AD 311, and Chinese Han documents dating to the reign of Wang Mang (AD 9–23).¹⁰⁶ For Stein, this was ample evidence that Chinese military colonies had been established on the great highways leading westwards. The dire circumstances depicted in the Sogdian Letters also suggested that the Sogdian merchants had been attracted to the region in earlier and more prosperous times.

What is impressive is the vast distances involved in the correspondence. The region of Sogdiana (essentially modern Uzbekistan and Tajikistan) lies some 2,000 km to the west of Dunhuang, and became known eventually in Chinese sources as the land of the 'nine states of Zhaowu', of which Samarkand (or Kangju) was the most prominent.¹⁰⁷ During the fourth to the tenth centuries, large numbers of Sogdians migrated eastwards to establish widely scattered settlements along the northern and southern Silk Routes, in the Tarim Basin, the Gansu Corridor, and as far east as the Chinese capitals at Chang'an and Luoyang, and eventually even into Inner Mongolia and North China.¹⁰⁸ By this time the name 'Sogdian' had become synonymous among the Chinese with any 'merchant', and, by the Later Tang Dynasty in the tenth century AD, the Sogdians were described as willing to go 'wherever profit is to be found'.¹⁰⁹ Although some assumed the origins of this establishment of a network of commercial settlements between Sogdiana and inner China dated back to Zhang Qian's expedition to the West in 130–125 BC or even earlier to the Achaemenid period, the period before the fourth century AD remained obscure.¹¹⁰ But the Sogdian letters at least suggested that a full-fledged postal and trading network already existed in the more favourable circumstances of the previous era.

¹⁰⁴ The commercial Sogdian loanwords from Indian include *s'rtṣ'w* 'caravan leader', Skrt. *sārthavāha* (Grenet, Sims-Williams, and Vaissière 1998: 98); *s'rth* 'caravan', Skrt. *sārtha-*; *mwōy* 'price', Skrt. *Mūlya-*; and *prst(k)* 'a unit of measure', Skrt. *Prastha-* (Sims-Williams 1996: 49). There are also Bactrian and Iranian loanwords. Sims-Williams (2000: 8).

¹⁰⁵ Sims-Williams (2005: 182), for the phrase 'if you go out (from China) to Loulan, you should buy "silk" (*pyrcyk*)' in which he derives *pira-* from Khotanese '(silk)worm', i.e. 'silk cloth'; cf. Hansen (2012: 119).

¹⁰⁶ Stein (1921: i. 670).

¹⁰⁷ Identified with the Chinese Kangju: see Gardiner-Garden (1986: 60–6), and Vaissière (2005: 24–7).

¹⁰⁸ Rong (2000: 117–63); Vaissière (2002; 2005: 95–157; summarized in 2004); cf. Hansen (2003).

¹⁰⁹ Pulleyblank (1952: 317) and Sims-Williams (1996: 46). But cf. Grenet (2010: 269).

¹¹⁰ Vaissière (2002: 36; 2005: 28–33). See Sims-Williams (1996: 62) for philological suggestions that the Sogdian writing system derived from Aramaic and dates back to the Achaemenid period.

The problem was that the proto-history of the Sogdian language and script was virtually unknown until recently. The corpus of early Sogdian texts was minimal: a few inscribed drinking vessels of the first century BC and perhaps even earlier numismatic evidence from Sogdiana.¹¹¹ But, in 2006, new Sogdian texts were published from Kultobe in Kazakhstan, dating sometime before the first half of the third century AD, and probably much earlier.¹¹² The Han sources know Sogdiana as the location of the kingdom of Kangju in the first century BC, whose ruler had subordinated five 'lesser kings', after which the confederate state began to fragment. The new texts indicate that the supreme power was the 'kingdom of Chach' (Tashkent), and that the members of the four confederate states were Samarkand, Kish, Nakhshab, and Bokhara, with a number of lesser principalities in central and southern Sogdiana. The indication from the texts is that Sogdiana was the location of a well-organized confederate state that had marshalled a powerful military force far in advance of the Sogdian Letters of the fourth century AD. This earlier history remained a mystery until recently, but the prognosticators who proposed that an even earlier history of Sogdian commerce with China existed now have received verification from recent discoveries.¹¹³

The pursuit of a larger and earlier Sogdian network began with Stein's excavations in 1913/14 at the ruins at Loulan in the Lop Desert, 400 km west of Dunhuang, located on the northern route of the Tarim Basin.¹¹⁴ During the early Han era, Loulan was the centre of an unruly petty kingdom, which attacked Han envoys until it was subjected in 108 BC, and finally came under Han control in 77 BC and subsequently was designated as Shan-shan by the Chinese.¹¹⁵ After the first century BC, its history is obscure until illuminated by the Chinese documents in the late third and early fourth century AD.¹¹⁶

Loulan is a small fortified site, with 4 m high walls, rectangular in shape (340 m × 310 m), with about nineteen internal structures.¹¹⁷ In the rubbish heaps around the now desolate buildings, Stein found numerous small pieces of fine imported Chinese coloured silk, including small bales of yellow silk, evidently used as currency by the local Chinese military garrison.¹¹⁸ Some of this silk dating to the Han period displayed patterns identified as Irano-Parthian,

¹¹¹ Grenet (2006: 223–30) and Sims-Williams and Grenet (2006: 95); Livshits (2007).

¹¹² Sims-Williams and Grenet (2006: 95–111). Of the eight mainly fragmentary texts, nos 2 and 4 are the most revealing.

¹¹³ See Yoshida (2002) and Trombert (2003: 231–41).

¹¹⁴ Baumer (2000: 121–36), for a summary of Sven Hedin's discovery of Loulan in 1900 and Stein's later excavations (he abbreviated the name of the site as L.A.).

¹¹⁵ HS 61, 7a = 96A, 11B.

¹¹⁶ A stream of Han bronze coins of the *wuzhu* type dating between 86 and 1 BC has been found near Loulan: Stein (1928: 287–92), discussed by Wang, H. (2004b: 25–6) and Hansen (2012: 35–6).

¹¹⁷ Baumer (2000: 129–30), for a description with a plan of the site.

¹¹⁸ Stein (1921: i. 360–449, esp. 373–4) for the silk finds. See Hansen (2012: pl. 5) for a colour photo.

including one wool tapestry with Mesopotamian motifs.¹¹⁹ It receives corroboration from the recent discovery of a human burial at Yingpan, c.200 km southwest of Loulan, where the corpse was clothed in a red woollen robe decorated with Graeco-Roman and Iranian motifs, perhaps dating to the Han period.¹²⁰ But most of the documents that Stein found here were in Chinese, with 45 of the 400 texts in the corpus dating from AD 263 to 270, and a few others from AD 312 to 330, when a Chinese military colony occupied the site.¹²¹ One even preserves the payment of silk as tribute to a barbarian (*CD* no. 903). Most of the rest of the texts that Stein found were in the Kharoṣṭhī script (for which see below), including one strip of undyed silk with two lines of Kharoṣṭhī.¹²² But a few fragmentary scraps of Sogdian documents were also discovered, including one letter similar to the Sogdian Letters from the Dunhuang watchtower.¹²³ A Sogdian presence at Loulan at the time is confirmed by the Chinese documents. One slip dated to AD 330 records a Sogdian payment in grain to the Chinese authorities and another fragmentary text records a payment of 319 'horses' in exchange for 4,320 bolts of coloured silk, perhaps also by Sogdians.¹²⁴ But there was not even a clue for establishing an earlier network of Sogdian colonies in the Tarim Basin during the earlier Han period. Even Stein's assessment of the post-Han period is modest. There were only a few indications of trade passing through Loulan: several references to 'fabrics' in Chinese documents, and the mention of camels, donkeys, and carts, but nothing suggesting a flourishing caravan trade.¹²⁵ A few texts recorded departures through the Jade Gate (*Yü-men*), near Dunhuang, to the west, the major portal leading to the Western Regions (Fig. 5.3), and trade conducted at Dunhuang.¹²⁶ But there is nothing to suggest the presence of a Sogdian merchant colony in the earlier Han Period. The gap between the fourth-century AD Sogdian Letters and the earlier Han era still remained a virtual blank.

The silence was broken in 1987 with the discovery of the archive of the Han Dynasty garrison at Xuanquan, 64 km east of Dunhuang, the first stop on

¹¹⁹ Ackerman (1981: 685–91).

¹²⁰ Zhou and Song (1998: 63–74, and figs 132–4). Hansen (2012: 40) notes that the 6' 6" man was 'buried in wool, not cotton or silk', but his head rests on a pillow of silk and his feet are dressed in silk boot covers: see Baumer (2000: 135, with photo, fig. 128). Moreover, the local woollen robe was an overcoat, beneath which he was dressed in a silken robe: see the detailed description in Sheng (2010: 39–40), who, however, dates the burial to after AD 450. See also Meicun (2001) for a Kharoṣṭhī letter found in a Xingpan tomb.

¹²¹ Stein (1921: i. 379) and *CD* iv; Maspero (1953); for discussion, see Brough (1965: 602) and Atwood (1991: 164).

¹²² Brough (1965: 602–5); cf. Kazuo (1963: 170) and Atwood (1991).

¹²³ Sims-Williams (1996: 49) = L.A. II.ii.09; cf. Stein (1921: i. 383) = L.A. VI.ii.0104, and Vaissière (2005: 58 and n. 40).

¹²⁴ *CD*, no. 880 and Conrady (1920: no. 46) on 124 [Chinese text], 126 [translation], and Taf. II [photo], discussed by Hansen (2012: 43 with 252, nn. 55–8).

¹²⁵ Stein (1921: i. 412), referring to *CD*, nos 755, 805, 812, 814, 839–41.

¹²⁶ Stein (1921: i. 412) with *CD*, nos 914, 918, 923.



Fig. 15.3. The 'Jade Gate' at Yumen Guan, Yadan National Park, 80 km north-west of Dunhuang in Gangsu Province, China. The gate was erected by Emperor Wudi after 121 BC, at the final post on the major route leading to the Western Regions in Central Asia

(photo: John E. Hill)

entering China from the west, near Kashgar. This new archive consists of 35,000 discarded documents, the official correspondence of the garrison, with 23,000 on wooden slips and another 12,000 on bamboo slips. Several thousand of the documents date between 111 BC and AD 107.¹²⁷ Few have been published, but a number refer to Sogdians entering China as diplomatic envoys, with a fixed and monitored itinerary listing the towns they could visit on their journey inside China on the way to the Han court. In 52 BC, one such diplomatic mission is described as including two envoys, ten aristocrats and their entourage, as well as nine horses, thirty-one donkeys, twenty-five camels, and a cow. Another record from 39 BC preserves a dispute between Sogdian envoys and Chinese officials concerning the prices of commercial items, and a request for lodging considerations.¹²⁸ Others make reference to the Kushan world of India and Pakistan, but lack any references to Iran and the world

¹²⁷ Rengxiang (1999); Yanjiusuo (2000); Shu-sheng (2005); and Yansheng (2005) [Chinese], summarized in Hansen (2012: 14–18).

¹²⁸ Wang, S. (2004) and Yansheng (2009) [Chinese]; cf. Hansen (2012: 17).

2. The Kharoṣṭhī Documents

A detailed map of Central Asia and Xinjiang. The map shows the Aral Sea to the northwest, with the Syr Darya and Amu Darya rivers flowing into it. The Ferghana Valley is located to the north of Samarkand. The Tianshan Mountains are shown as a shaded area. The Karakoram and Taklamakan Desert are labeled. The Indus River is shown to the south. The Yangtze River is shown to the east. Major cities and regions are marked, including Samarkand, Sogdia, Bactria, Karakoram, Gandhara, Khotan, Xinjiang, Tarim Basin, Loulan, Lop Nor, and Turfan. The map also shows the Khotan, Keryla, and Snail rivers.

¹³⁰ See Baumer (2000: 1–11) and Di Cosmo (2000). For the environment, see Hoyangi (1975).

these once flourishing rural villages, Stein found numerous Chinese and Gāndhārī Prakrit Indian documents, many discarded in refuse dumps. Most of the Indian texts written in Kharoṣṭhī script were from the ruins along a dried-out river bed north of Niya, outnumbering significantly those found 300 miles to the east at Loulan by the Lop Nor Lake.¹³¹ The Kharoṣṭhī script was adapted from Aramaic and used for writing the Gāndhārī and Sanskrit languages; it was used from the time of Aśoka in the third century BC into the third century AD over a widespread area that included north-west India, Afghanistan, and Pakistan, including the scattered villages discovered in the Tarim Basin by Stein.¹³² But the language of the Tarim documents is a distinctively different type of Prakrit, containing notable Iranian loanwords absorbed via north-west India and then imported into Central Asia, where in turn the language was influenced by native speakers.¹³³ The documents reveal that the ancient names of Niya and Loulan were *Caḍota* and *Kroraina*, respectively, and that the latter represented the administrative city state and capital of the kingdom of Shan-shan.¹³⁴ The chronology of Stein's Kharoṣṭhī corpus is based on the five kings of Shan-shan mentioned in the texts, whose collective reigns extend for almost a century, roughly dated c. AD 240–340.¹³⁵ The names of the kings are neither Indian nor Kushan, but their royal titles are Kushan, and it assumed that the region was incorporated into the Kushan Empire by the middle of the second century AD.¹³⁶ The Chinese texts discovered at Niya were significantly fewer than those from Loulan, the disparity suggesting Loulan's status as the location of a major Chinese garrison, whereas Niya was the location of only a small frontier outpost. The Chinese texts have recently been dated to the reign of Wang Mang in AD 9–23, and record embassies from *Dayuan* (Ferghana), the *Yuezhi* from the west, and perhaps a Han envoy's visit

¹³¹ Stein (1921: i. 224–34 (Niya) and 381–5 (Loulan)). Of the 782 texts published in *KhI* and Burrow (1937: 725), most are from Niya, and only 48 from Loulan. For the Niya site, see Stein (1907: i. 316–416) and Baumer (2000: 97–106).

¹³² For discussions of Kharoṣṭhī, see Falk (1993: 84–105); Salomon (1996a; b). The subsequent additions to Stein's corpus have been few: see Salomon (1986; 1988) for one from the Khotan region and several more from Stein's Niya site and Xingpan (Meicun 2001). The most interesting addition is Brough (1961: 525–6), from Lou-yang, the Chinese capital, far to the east of the Tarim Basin.

¹³³ Burrow (1934: 514–16, 789–90; Burrow (1937: pp. v–ix) notes 'Tocharian' elements in the 'Krorainic' dialect. Of note is that the kings of Khotan use the Iranian title *himajhasya*, representing Greek *stratēgos* translated into Iranian. See Burrow (1937: 133). Names and loanwords in the documents have been identified as 'Tocharian': see Lane (1967) and Adams (1984; 1988). For the possible identification of the Xinjiang people with the Yuezhi and the 'Seres' of classical sources, see Sergent (1998).

¹³⁴ Hansen (2012: 25–55).

¹³⁵ Brough (1965: 602, n. 72). Earlier, Enoki (1963: 151) suggested a date of AD 250–330, and more recently Atwood (1991: 165) proposed a slightly earlier date of AD 239–328.

¹³⁶ Brough (1965: 582–97).

in the first century AD.¹³⁷ In another rubbish heap, Stein found forty-seven more Chinese documents, one mentioning the 'King of Shan-shan'.¹³⁸ The Chinese designated this as the *Shanshu* region in the Western Regions. In AD 222, *Shanshu* was sending tribute to China, and by AD 230 sending embassies to the Chinese Wei emperor. The major transition in the area was in AD 263, when Shan-shan came under Chinese control, during the seventeenth year of Angoka's reign as king of Shan-shan, when he sheds Indian epithets for a Chinese royal title.¹³⁹ Of note is a distinctively different text from the other Kharoṣṭhī documents from Niya, from a locality to the north-east at nearby Endere, dated to the tenth year of the king of Khotan with an idiosyncratic palaeography and orthography, containing Iranian features and a Sogdian name known from the Sogdian letters.¹⁴⁰ But at Niya, Kharoṣṭhī texts dominate, with Chinese texts in the minority.

Neither the Kharoṣṭhī documents nor the Chinese texts contribute greatly to our understanding of the silk trade, although a few Kharoṣṭhī texts indicate silk was used as the primary medium of currency for the payment of debts. One such text from Niya indicates 'at present there are no merchants from China [*cinasthanade vanije*], so that *the debt of silk* is not to be investigated now...when the merchants arrive from China, *the debt of silk* is to be investigated'.¹⁴¹ The same situation seems reflected in a text that mentions there was 'no buying or selling' at Kroraina.¹⁴² Elsewhere, it is mentioned that a *white silk jacket* was stolen and recovered, and that *silk rolls* are regularly imposed for fines or to repay debts.¹⁴³ Another text from Niya indicates that penalties in a community of monks were levied in silk, from one to fifteen rolls of silk, depending on the violation; and still another text records that an official returning from the capital paid a group of individuals with silk rolls, in varying quantities.¹⁴⁴ In addition, the Chinese texts from the Tarim Basin

¹³⁷ Chavannes dated the texts from House XIV at Niya to the fourth century AD (CD, p. iv and nos 940–50), but Hansen (2012: 36–7) assigns them to the first century AD.

¹³⁸ Stein (1907: i. 358–68) for a description of the finds at House XV, and i. 537–42 for the texts (published by Chavannes), with p. 538 for Niya v.xv.74, 93, 345: 'king of Shan-shan'; cf. Brough (1970: 39–40).

¹³⁹ Brough (1965: 598–9); see *KhI*, nos 571, 590 (Niya xxiv.viii.74, 93) for the title 'great king, *Jitughā*, son of heaven.' For *jitughā*, see Burrow (1937: 92 s.v.) and Atwood (1991: 164).

¹⁴⁰ *KhI*, no. 661, a camel-sale deed. See Burrow (1936: 430) and, for discussion; Brough (1965: 594); and Vaissière (2005: 58). Yoshida (1993: 255) proposes other possible Sogdian names in the Kharoṣṭhī corpus.

¹⁴¹ *KhI*, no. 35 (Niya i.49) = Stein (1907: 388) = Burrow (1940: no. 35 (translation)). For discussion, see Atwood (1991: 191). For *vaniye*, 'merchants', see Burrow (1937: 118 s.v.). The texts also mention 'Chinese robes' (no. 149: Niya iv.126) and 'Chinese turbans' (no. 353: Niya xv.204).

¹⁴² *KhI*, no. 696 (L.A. CV.ii) = Burrow (1940: no. 696 (translation)).

¹⁴³ *KhI*, nos 318, 489, 660.

¹⁴⁴ *KhI*, nos 489 for penalties to monks (Niya xxiii.i.ii) and 660 for payments (Endere E.VI) = Burrow (1940: nos 489 and 660 (translation)).

provide some evidence of travel between East and West.¹⁴⁵ One Chinese text from Loulan indicates that barbarian tribute was received of ten rolls of silk, two ten-foot pieces of white silk, one roll of yellow silk, and one roll of light silk.¹⁴⁶ A silk document also records a payment received from the Shan-tong province established in AD 84 of one roll of silk and some other lengthy pieces, with their precise dimensions, weight, and cost.¹⁴⁷ There are also several dozen references to the commander and soldiers guarding the 'Jade Gate', and several regarding travellers and the transportation of goods from China to the West.¹⁴⁸ Although the importance of these documents for long-distance trade is absent, they reveal that Chinese merchants were the suppliers of silk to this western region, and attest the interactions between China and Central Asia.

The Chinese excavations of burials at Niya in 1959, and more recently by the Sino-Japanese expedition to Niya in 1995, have provided material evidence for these transactions.¹⁴⁹ The latter produced silk brocades and evidence of the silk-spinning craft in the tombs of the Kroraina kingdom dated to the second to the fourth centuries AD, and perhaps even earlier.¹⁵⁰ Some of the silk has Chinese characters woven into the design, traditional blessings for longevity and many descendants. Clay vessels inscribed in Chinese with the words 'lord' and 'king' suggest that they were gifts from the Han court.¹⁵¹ The most striking recent find at Niya is a coloured silk brocade with an embroidered Chinese inscription recording a favourable omen, an astronomical event dated to 61 BC, when there was a celestial conjunction of five planets in the east: Jupiter, Mars, Mercury, Saturn, and Venus.¹⁵² From the western perspective, the cotton garments in the burials represent the earliest finds of the fabric in the region.¹⁵³ The analysis of the mummies and the Kharoṣṭhī texts suggest the Kroraina population were 'Tocharian'-speaking immigrants from the west and the Iranian milieu.¹⁵⁴ Excavations at Niya in the 1980s also produced

¹⁴⁵ Summarized by Stein (1921: i. 412), who lists also several references to silk (CD, nos 805, 812, 814), transport by camels and donkeys (nos 839–41), and the inspection of a cart (no. 755).

¹⁴⁶ CD, no. 903 (L.A.iv.i.i).

¹⁴⁷ CD, no. 539 (T. xv.a.i.3). Chavannes dates the text to the end of the first or to the second century AD.

¹⁴⁸ CD, index (p. 230); traveller: no. 923 (L.A.vi.066); transport of goods: nos 315 (T. xiv.iii.14) and 379 (T.xiv.1.9).

¹⁴⁹ For a catalogue of the archaeological sites in Xinjiang, see V. A. Mair and D. Kamperi in Mair (1998: 857–64). For the silk finds, see Mair (2010: 55, and catalogue nos 70, 72 [Loulan], nos 84.1–4, 85–6, 88–9 [Niya]), and note the Han mirror from cemetery 1 at Niya, Tomb 5 (no. 87) and the lacquered comb from Tomb 49 of the Sampal cemetery at Lop (no. 40). The grave goods are dated from the first to the fourth centuries AD.

¹⁵⁰ Kaogudui (1961) and Wang (2001; 2003 [Chinese]), summarized in Hansen (2012: 38–42); cf. Trombert (2000: 113–14).

¹⁵¹ Hansen (2012: 38–42, with references).

¹⁵² Yu (1996: 43–6), with Baumer (2000: 99–100, with 102, fig. 91).

¹⁵³ Trombert (1996: 212; cf. 2000: 117–18).

¹⁵⁴ For analysis of the mummies, see Mallory and Mair (2000) and Mair (2010) for a recent summary. The complex linguistic and genetic analyses are discussed in Thornton and Schurr

evidence of sericulture at the site, including cocoons and seeds from mulberry trees, dating to the second and third centuries AD.¹⁵⁵ These discoveries suggest that the Taklamakan was not just the transit area for silk, but also a production centre. These new finds illuminate the rather opaque Kharoṣṭhī documents and contribute to our understanding of the economy of Kroraina society in the Tarim Basin during the Han era.

Large quantities of glass have also been discovered in the Tarim Basin, much of which has been identified as Roman, by both the early explorations and the more recent excavations.¹⁵⁶ Both stylistic comparison and chemical composition indicate that much of this glass was imported from Western Regions, and was not local production.¹⁵⁷ Among the items imported from the Western Regions, and notably *Da Qin*, the *HHS* mentions several types of glass, including 'crystal glass' (*shui-ching*) and 'coloured and translucent glass' (*liu-li*).¹⁵⁸ The Chinese list conforms fairly closely to the items mentioned by Pliny and the *PME*, where they are listed as Roman items of exchange in the Indian ports.¹⁵⁹ Within China itself, Roman glass appears in various tombs dating from the second century into the sixth century AD.¹⁶⁰ The large quantities of Roman glass in Central Asia and China must be viewed as the product of organized trade, not incidental transactions. Evidence follows for

(2004). For a brief summary of the 'Tocharian' controversy, see Pulleyblank (1983: 456–9); Mallory and Adams (2006: 35–6); Kuzmina (2008: 66–107); and Mallory (2015: 1–63), with references.

¹⁵⁵ Trombert (2000: 113, and n. 24), citing Jia (1985: 173).

¹⁵⁶ Bergman (1939: 150): 'All the glass objects [from Loulan] are certainly importations from the eastern part of the Roman Empire.' See the extensive references for the Tarim Basin from Stein cited by Raschke (1978: 627–30, and 739, n. 384), who suggests much of the glass is from local production; cf. Liu (1988: 20). More recent chemical analysis and study of the Taklamakan glass finds indicate a Western origin for much of the glass. See Li (2009: 348–51).

¹⁵⁷ See Wang and Liu (2009: 325–7), who indicate 'glass production did not exist in the ancient kingdoms of Xinjiang before the Tang Dynasty'.

¹⁵⁸ For a translation of the 'Products of *Da Qin*' in the *HHS*, see Hill (2009: 25–7, with commentary, 259–310, and glass discussed at 270–2). See also Leslie and Gardiner (1996: 199–220, with glass discussed at 212–14). Note the presence of Indian glass vessels and beads in Liu (1988: 58–63), and that Indian 'rock crystal' was also prized in the Roman world: Plin. *NH* 37.23.

¹⁵⁹ For a list of Roman imports in classical sources, see Miller (1969: 203–15) and Casson (1989: 39–43). For the ports of India, the *PME* mentions 'glassware' at Barbarikon (p. 39), and 'raw glass' at Barygaza (p. 43; cf. p. 56). For the early Roman glass finds in India, see Stern (1991: 113–24). At Muziris, the *primum emporium Indiae* (Plin. *NH* 6.104), 'glass beads in huge quantity' are reported: see Gurukkal (2013: 186); cf. Selvakumar, Shajan, and Tomber (2010: 34): 'beads of glass and semi-precious stones.' Casson (1989: 24, 220) regards Nelkynda and Muziris on the Malabar coast of south-west India as the location of 'foreign colonies' that 'served merely as transshipment points'. Early Han sources of the second century BC already mention glass from Kanchipuram in north-east India: see Hill (2009: 272).

¹⁶⁰ Kinoshita (2009: 253–4). Note Mair (2010: 56) for 'a greenish late antique [Syrian] bowl' with a cut-facet surface found in the tomb of 'The Yingpan Man' in a cemetery 200 km west of Lopnur, near the first stop west of Loulan, along the Kōnchi River. The mummy is covered from head to feet in silk.

population movements across the Far Eastern landscape between China and Pakistan and transit stations for the storage of commercial items in Afghanistan.

3. The Karakoram Graffiti

During the construction of the Karakoram Highway in northern Pakistan between 1967 and 1978, numerous inscriptions and rock carvings were discovered along the upper valley of the Indus, Gilgit, and Hunza rivers, which are a product of the glaciers of the rugged Karakoram range (Fig. 15.4). The pass traversed by the construction project was a direct link between India and the Tarim Basin in China. Along with the large numbers of prehistoric and historic rock art exposed by the project, a large number of inscriptions became visible and accessible along the difficult pass.¹⁶¹ The graffiti were written in a variety of scripts—some in Brāhmī (410) and Kharoṣṭhī (12 to 15) from India, as was to be expected, but 610 others were in various Iranian scripts and languages, mostly in Sogdian, but a few in Bactrian (10), Parthian (2), and Middle Persian (2), and even a few in Chinese and Hebrew.¹⁶² The majority of these were found at Shatiel, the farthest downstream of any site along the pass, where 560 Sogdian texts alone were recorded, the majority of the Iranian corpus.¹⁶³ As a result, it was proposed that Shatiel was the ultimate destination of the Sogdians, where they bartered with Indian merchants in a ‘trade fair’ and returned to their homeland.¹⁶⁴ But the onomasticon of the Sogdian texts suggests at least some of the Sogdian travellers were returning from China. These Sogdians adopt surnames in Chinese style and refer to ‘Chinese’ (*cyn’nch*) women, suggesting Sogdians who have Sinicized while residing as merchants in China. A man with a Parthian name even mentions ‘Tahkurgan’ (*xrβntn*), the province west of Xinjiang, and other Sogdian texts mention a number of towns and villages near Samarkand and Tashkent in Uzbekistan.¹⁶⁵ Theophoric names are common, especially those composed with the goddess Nane or the ‘Oxus’. Other texts contain ethnics as personal names. These include ‘Kish’ (*kš’ykbdc*), a city in southern Sogdiana, ‘Persian’ (*p’rs’k*), ‘Indian’

¹⁶¹ Jettmar (1980; 2002: 80–109); cf. Hansen (2012: 30–2).

¹⁶² See Sims-Williams (1989a, b; 1992) for the Iranian texts.

¹⁶³ Fussman and König (1997: 117–356) for the catalogue. For the other sites, Oshibat: Bemann and König (1994); Hodar: Bandini-König (1999); Thalpan: Bandini-König (2003). Shatiel is the location of 90% of all the Sogdian texts: Sims-Williams (1996: 53). For the Iranian texts, see Sims-Williams (1997–8). Many of the names in the Sogdian letters (estimated at one-third) appear in the Karakoram texts, and a few Sogdian names have also been detected in the Brāmi inscriptions from the region: see Yoshida (1993: 255).

¹⁶⁴ Jettmar (2002: 114). One Sogdian text from Shatiel appears to refer to a ‘sacred place’ named *k’rt*: see Sims-Williams (1989a: 133). Cf. Semenov (1996: 35–56).

¹⁶⁵ Yoshida (1991: 237–8); cf. Sims-Williams (1996: 54–6).

(*'yntwk'*), 'Hun' (*xwn*), 'Kushan' (*kwš'n*), and perhaps 'Syrian' (*swry'kk*).¹⁶⁶ In fact, the most frequent Sogdian name is 'Hun' (*xwn*), suggesting a period after the conquest of Sogdiana by the nomadic *Xiongnu*.¹⁶⁷ None of the texts is dated, but the palaeography of the Sogdian texts suggests a date compatible with the Sogdian letters and extending from the third to the sixth centuries, essentially the same range as the Brāhmī graffiti recorded in the Karakoram pass.¹⁶⁸ The trade routes of the Sogdian merchants form a virtual triangle between the Upper Indus and India, Sogdiana, and China, with Sogdians ostensibly covering all the legs of the triangle.

These connections between China and the Upper Indus date to a much earlier period. The Han Dynasty annals indicate that already in the first century BC a number of mercantile missions were sent from north-west India to China. In the *Qian Hanshu* it is recorded that the Emperor Wu had sent an embassy to *Jibin* (the area of north-west India), and that a number of missions from *Jibin* were sent to the Han emperors in China on a regular basis by the last quarter of the first century BC, although the Chinese were aware the *Jibin* envoys were not political officials, but actually 'merchants' whose objective was to engage in commerce.¹⁶⁹ The foreign 'envoys' were permitted to trade in China, but there was no attempt by the Han emperors to send any more embassies to the region because of the difficult terrain. In particular, the forbidding obstacle of the Indus passes in *Xiandu* is mentioned, indicating Chinese familiarity with the region. It appears that the report also alludes to the mountains of Khotan (*Phishan*), the High Tibetan plateau ('the Greater and the Lesser Headache Mountains'), and the Karakoram Gorge (*San-Ch'ih-Phan*), with the 'Suspended Crossing'.¹⁷⁰ Although the Chinese texts recorded in the Karakoram Pass are only a handful,¹⁷¹ they support the fact that some Chinese ventured through the challenging precipitous pass in antiquity.

4. The Begram 'Treasure'

The ruins of ancient Begram, near modern Bagram in Afghanistan, are in a fertile valley at the confluence of the Ghorband and Panjshir Rivers, and the

¹⁶⁶ Sims-Williams (1989a: 133; 1992: nos 48, 5, 56, 63–64, 7; 1996: 55).

¹⁶⁷ Vaissière (2002: 79–82; 2004).

¹⁶⁸ Sims-Williams and Grenet (2006: 95); cf. Sims-Williams (1996: 53–5). For later Sogdian texts from Ladak in Western Tibet, see Sims-Williams (1995: 67).

¹⁶⁹ The (*Qian*) *Han shu* 96A = Hulsewé and Loewe (1979: 97–111); see also Needham and Ling (1965: 191, 194) for the later summary account in the *Tongjian gamgmu*.

¹⁷⁰ Needham and Ling (1965: 194, n.c. for the identifications). The 'Suspended Crossing' has been identified by Jettmar (1987: 102, with map), with the Gorge just north of Jalkot, where the modern Karakoram Highway crosses to the eastern side of the Indus.

¹⁷¹ For discussion of the Chinese texts, see T. O. Höllmann in Fussman and König (1997: 61).

crossroads of the ancient caravan routes leading from China to India and the Mediterranean. The ruins are just 80 km north of Kabul and 250 km north-west of the famous Khyber Pass. To the north a number of passes lead to Bactra, the ancient capital of Bactria, and just to the east are the passes leading through the Hindu Kush mountains. The ruins at Begram were initially identified by Alfred Foucher with Kāpisi, the summer capital of the Kushan king Kanishka, based on the travel account of the Chinese pilgrim Xuanzang in the seventh century AD.¹⁷² The site was excavated by the Délégation Archéologique Française en Afghanistan (DAFA) between 1936 and 1946. During the excavations an amazing cache of imported objects was discovered in two adjoining rooms (10 and 13) sealed by a brick wall in a passageway of a palace located within a fortified enclosure designated the 'Nouvelle Ville Royale'. The stockpile at Begram was described initially as a 'royal treasury', the accumulation of exotic goods from the first century AD until a postulated sack of the palace by the Sasanids in c. AD 241, with a reoccupation in the later Kushan period.¹⁷³ More recent analysis of the finds has challenged these conclusions.

The finds in Room 10 included numerous Roman glass and bronze objects and a great number of Indianesque carved ivory and bone objects. The adjacent Room 13 added more Roman glassware and bronze with plaster medallions of Roman type, additional ivory and bone objects, plus some Chinese lacquerware.¹⁷⁴ The glassware represents 180 or more vessels, of diverse shape and type, organized into thirteen groups.¹⁷⁵ They include mosaic and ribbed bowls, cut glass with honeycomb decoration (one with a Dionysiac scene), a hemispherical cup, and beakers. Most have parallels with Roman production or were even made in Roman workshops between the late first century BC and the early second century AD (groups 1–9 and 13), with specific parallels of the ribbed glass with *Herculaneum glass* (group 3). Some vessels with enamelled and gold-painted decoration and mythological scenes (the duel between Hector and Achilles, the Rape of Europa, and Isis and her attendants), vessels in the shape of fish and boats, and the 'Lighthouse Beaker' may date to the third century AD (groups 10–12), but this is not conclusive, and the coin evidence also seems to suggest a date in the first century AD for the deposit in the sealed rooms.¹⁷⁶ The chemical analyses of some vessels (in

¹⁷² Foucher (1931: 342–4). See Mehendale (1994) for reservations about the identification.

¹⁷³ Ghirshman (1946: 99–108). The earlier conclusions are summarized in Raschke (1978: 632–4).

¹⁷⁴ See Mehendale (2008b).

¹⁷⁵ Menninger (1996), with Whitehouse (1998); briefly in Tomber (2008: 123–4). Liu (1988: 20) indicates the scarcity of Roman products in north-west India reflecting an attempt to avoid Parthian competition, and attempts to minimize the significance of the Begram 'treasure', but this was before the more recent analyses.

¹⁷⁶ Whitehouse (2001: 437–44, 444–6) for the date and the discussion of the numismatic evidence. The coins of the Indo-Iranian king Gondophares at Taxila and the early Kushan rulers (Vima Kadphistes and Kanishka), spanning the first century AD and up to AD 150, are considered

groups a, 4, 7, 8, and 10) show that they contain natron, which suggests a production of the raw glass in Egypt or the Levant.¹⁷⁷ The finds also included plaster medallions with scenes of classical mythology, probably models of medal originals used in commercial exchange.¹⁷⁸ There also are fifty-five plaster casts that probably served as patterns for local gold- and silversmiths, but emanate from Mediterranean originals that are assigned a date from the late Hellenistic to the Julian-Claudian period, with most probably dating to the Augustan era.¹⁷⁹ In sum, the Roman objects in the Begram Treasure appear to be deposits from the first and early second centuries AD, with some items of undetermined date or the product of later occupation or contamination.¹⁸⁰ Why the cache was deliberately concealed in the early second century remains mysterious.

Recent analysis of the Indianesque ivory and bone carvings from the Begram Treasure has yielded a similar date of the first century AD for more than 1,000 objects, consisting of plaques, engraved or in relief, and sculptures. The scenes depicted are mainly mythological, derived from India and Central Asia, and representations of women, and flora and fauna motifs. The purpose of the plaques was for the decoration of furniture, and some have marks and Kharoṣṭhi letters on the reverse perhaps for their position in assemblage. The closest parallels are at Taxila (Pakistan), Tillya-tepe (Afghanistan), and Dalverzin (Uzbekistan), indicating a northern distribution, but with a lack of any parallels further south.¹⁸¹ The diversity of styles may suggest an atelier or workshop at Begram composed of artists and craftsmen from regional schools. The most striking parallel with the Begram ivory statuettes of standing women

coterminous with the stockpile, with the later coins among the twenty-one found in Room 13 the product of contamination by roof collapse. For a first-century AD date for the glass, see also Stern (1999: 478). For Taxila, see Whitehouse (1989: 95) for the Roman finds, and Turner (1989: 78) for a coin of Tiberius from the site.

¹⁷⁷ Brill and Rising (1999: i. 71–2; ii. 123–7), cited by Whitehouse (2001: 444). For the production centres in the Levant and Egypt, as well as Italy, Spain, and Gaul, see Pliny, *NH* 36.190–4, with Degryse and Schneider (2008). The trade across the Mediterranean and beyond was brisk in the early imperial era: see Stern (1999: 467–78). The wares of the Semitic glassblower ‘Ennion’ in the first half of the first century AD are known from Israel to Spain, and the north coast of the Black Sea: see Harden (1935: 164–9).

¹⁷⁸ Mehendale (2008: 141).

¹⁷⁹ Whitehouse (1998: 640).

¹⁸⁰ Whitehouse (2001: 444) dates the glass from the late first century BC to AD 125, a slight revision of his earlier proposed date for the concealing of the cache around AD 100: see his discussion in Whitehouse (1989: 99).

¹⁸¹ Mehendale (2001: 492–6, with 486–7), for the Kharoṣṭhi and Brahmi scripts on the reverse sides of the ivory and bone objects; cf. Ray (2003: 231–3). The *PME* indicates that ivory was exported at the southern Indian ports of Barygaza (49) and Muziris (56): see Casson (1989: 222). The Muziris papyrus indicates ivory was a considerable part (7.4%) of the Indian cargo headed for Alexandria: Rathbone (2001: 46). For the ivory comb at Tillya-tepe, see Sarianidi (1985: cat. 3.56); the first-century AD hoard also includes Chinese mirrors (cat. 2.34, 3.70, 6.31), signet rings with Athena inscribed in Greek (cat. 2.1, 2.2, 3.60, 3.78), and gold coins of the Emperor Tiberius (cat. 3.17) and a Parthian imitation of Gotarzes I (cat. 6.32 with Schiltz 2008: cat. 146), as well as a gold Indian medallion (cat. 4.25 = Schiltz 2008: cat. 119).

that may have decorated furniture found in Room 10 comes from Italy.¹⁸² An ivory statuette discovered at Pompeii depicts a naked central female figure, flanked by two shorter female attendants, who displays features analogous to the women in the Begram ivories, and has a mark in Kharoṣṭhī script on the base indicating the Indian provenance and supporting a date of the first century AD for the Begram ivories.¹⁸³ A similar date has been assigned to the fragments of Chinese lacquerware discovered alongside the ivory and bone carvings in Room 13. Only broken pieces survive that once decorated the exterior of wooden boxes and bowls. They are dated to the first half of the first century AD, based on the analogous lacquer production of Sichuān in south-west China in the same period.¹⁸⁴ This 'stockpile' of Roman, Indian, and Chinese goods has been interpreted as the contents of a 'customs depot' where taxes in kind were secured or even a centre for commerce and trade, where goods were produced in a local 'workshop' and exchanged for foreign goods from Central Asia and the Roman world.¹⁸⁵ In any case, Begram appears to be an important transit centre for trade and the transmission and distribution of valuable commodities overland with Han China to the east and the Arsacid Parthian empire to the west.¹⁸⁶ The absence of silk at Begram is not surprising, as such perishable materials would have disintegrated like the wooden bins and furniture in the storage rooms in the 'palace'.

From the vantage point of these multicultural sources and rather 'episodic' events, it should be evident that silk was being transmitted in diverse ways. If Han Chinese diplomacy involved large gifts to the various states in the Western Regions, it also served as a stimulus to trade, attracting mercantile interests in Chinese products and silk by these states. At a very early stage, the Sogdians appear to have been a primary agent in this commerce, perhaps as a result of Zhang Qian's western mission. The steady and immense immigration of Sogdians into China was certainly not dominated by merchants, as their motivations and occupation were complex and diverse.¹⁸⁷ But trade must be included as an integral part of this movement. Even if the Kharoṣṭhī documents from the Taklamakan settlements reveal only small-scale transactions, they also indicate a migration of eastern Iranian Indians as an important part of the population mix. The Chinese documents from the Taklamakan

¹⁸² See Mehendale (2008b: 162–3, nos 147–9). Note also the so-called Aphrodite of Bactria, a small 5 cm appliqué cast in high relief from Tillya-tepe: Sarianidi (1985: cat. 6.31) = Schiltz (2008: cat. 135); and Ray (2003: 233), for an ivory figure of a nude female from Sri Lanka dated to the second century AD.

¹⁸³ Mehendale (2001: 497–8, 513, fig. 14), with During Caspers (1981: 341–53) for the detailed analysis of the Pompeii find, which comes from a private house on the Via dell'Abbondanza.

¹⁸⁴ Pirazzoli-T'Serstevens (2001: 473–84). Only a few pieces are extant in the Musée Guimet in Paris.

¹⁸⁵ Mehendale (1996: 10–11; 2008a: 142–3).

¹⁸⁶ Cambon (2008: 160–1).

¹⁸⁷ As observed by Trombert (2003: 238–9), but based on older sources.

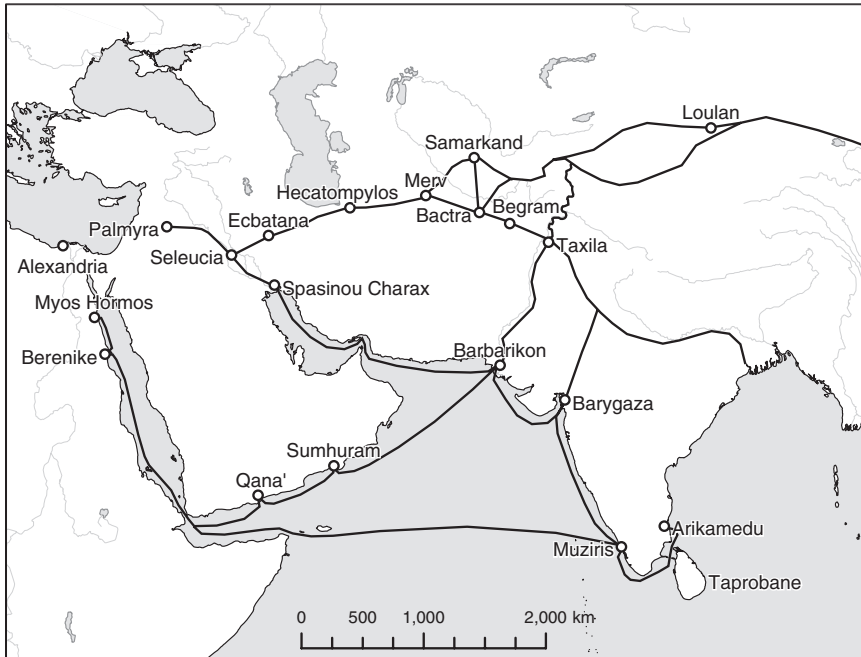


Fig. 15.5. Map of overland and maritime silk routes
(map by Chris Hanson)

settlements indicate that silk was also used as currency to pay the Chinese military colonies, and excavations from the region provide illustrative examples of silk as a burial good. The transportation of silk to the west is signalled by the Karakoram Highway graffiti, which reflect this same interaction by Chinese and the various Central Asian populations into the west. The existence of transit stations and depots at various stages is established by the Begram Treasure. This transportation and absorption of silk by the Central Asian communities provided the means and mechanism for silk's appearance in the more distant west. What remains to be determined is how it managed to arrive within the Roman Empire. The possibilities are twofold: it could be sent southwards to the ports in the Indian Peninsula, or travel overland by caravans across the Iranian Plateau to Mesopotamia and Syria (Fig. 15.5).

ROMAN CONTACTS WITH THE EAST

According to Chinese sources, the first direct contact with the Roman Empire was the ninth year of *Yanxi* of the emperor Huandi's reign, in AD 166, when an embassy from the king of *Da Qin* named *Andun* arrived from *Rinan* (the Han

commandery on the Central Vietnamese coast) at the court of the emperor in China with gifts of elephant tusks, rhinoceros horn, and tortoise shell. Previously, the Chinese Annals indicate the Parthians prevented the 'king' of *Da Qin* from making contact with the Han emperor in order to 'control the trade in Chinese [multi-coloured] silks'.¹⁸⁸ Hirth identified the king *Andun* as Marcus Aurelius Antoninus, but regarded the embassy as composed of commercial entrepreneurs from the Levant, not official Roman imperial envoys, an opinion with which both sinologists and classicists have been in general agreement.¹⁸⁹ Even Fan Ye, the compiler of the *HHS*, doubted the legitimacy of the mission, since no precious jewels were mentioned in the list of gifts received from *Da Qin*, a region whose gems were legendary among the Chinese. Far more important is the fact that the Roman merchants were operating out of *Jih-nan* (Vietnam), the same area where Indian embassies also sent gifts to China in AD 159 and 161 (see above). Discoveries of a gold medallion of Antoninus Pius dated to AD 152, and another bearing the name of Marcus Aurelius at Oc-Eo near Saigon, offer credibility for Roman commercial contact with the region.¹⁹⁰ In a later Chinese source, the *Liang-shu*, a similar account is reported for AD 226, when a merchant of *Da Qin* named *Qin lun* came to *Jiaozhi* (Tonkin Gulf) and was sent on to the emperor. After he had described his country of *Da Qin* to the emperor, the merchant returned to *Da Qin* with a gift of some twenty blackish dwarfs from the emperor. The same account mentions that merchants from *Da Qin* often visit *Funan* (Cambodia), *Rimam* (Vietnam), and *Jiaozhi*.¹⁹¹ Even less credible is the account in a later Chinese source that the king of *Da Qin* sent an embassy to China in AD 284/5 that presented the emperor with 30,000 rolls of (honey fragrance) paper.¹⁹² Since the Chinese invented paper by AD 105 and it was in general use thereafter, the story is regarded as suspicious. It is clear that, for the Chinese, the Roman Empire was a vague and distorted world, a reflection of the more than 5,000 miles that separated the two Great Empires and prevented even minimal contact. As Bang observes: 'The two world empires remained hidden to each other in a twilight realm of fable and myth.'¹⁹³

From the Roman perspective, Ptolemy's map in the middle of the second century AD included for the first time China and the Far East. The information

¹⁸⁸ *HSS* 118, Hirth (1885: 42 E 33) = Chavannes (1907: 185); Hill (2009: 27); Leslie and Gardiner (1996: 153–8).

¹⁸⁹ Hirth (1885: 75–178); Leslie and Gardiner (1996: 153–8) for translation and discussion.

¹⁹⁰ Cœdès (1947: 197–9). The finds were discovered with ancient seals with Indian inscriptions of the second century AD, and a late Han bronze mirror.

¹⁹¹ *Liang shu* 4 = Hirth (1885: 47 H 8–10); Leslie and Gardiner (1996: 158–9) point out chronological problems with the account.

¹⁹² Mentioned in a number of late Chinese sources: see Leslie and Gardiner (1996: 159–60, 206–7) for honey fragrance paper, a local product of Indo-China! Hirth (1885: 273–5) is equally suspicious.

¹⁹³ Bang (2009: 120).

was gained from Marinus of Tyre, who was dependent on the earlier exploration of a merchant Maes Titianus and his agents:

Marinus informs us that a certain Macedonian named Maes, who was also called Titian(us), son of a merchant father, and a merchant himself, noted the length of this journey [to the Stone Tower—*Lithinos Pyrgos*], although he did not come to Sera himself, but sent others there. (*Geog.* I. 11. 7)

The geographer Marinus of Tyre and the merchant Maes Titianus are both obscure, known only from Ptolemy's discussion and analysis of their work, but this has not deterred scholarly pursuit of their origins and date.¹⁹⁴ Bernard's recent analysis of Maes suggests he was probably a native of a Macedonian colony at Hierapolis/Bambyke (Manbij), and of Paphlagonian–Pontic–Cappadocian descent, who operated in Roman Syria at the turn of the first and second centuries AD, and this seems to be the current consensus.¹⁹⁵ Attempts to find an earlier or different context have been systematically rejected or ignored.¹⁹⁶ In addition, Bambyke, 60 km south of Zeugma, appears to have been prominently engaged in international commerce, as it represented the western terminus of an eastward route. It has been identified as the location of *Fanfu* in *Da Qin* that is mentioned in Chinese sources.¹⁹⁷

The journey from Hierapolis is described in rather vague terms. Maes and his merchant colleagues measured the distances of their route from Hierapolis to the Stone Tower as 26,280 stadia (over 3,000 miles), and the distance from the Stone Tower to Sera, the capital of the Seres, as 36,200 stadia (over 4,000 miles). The exaggerated distances have to be corrected, and Ptolemy does this simply by reducing the distances to half. Marinus himself was sceptical of

¹⁹⁴ The original work of Marinus and Maes has disappeared without a trace. For Marinus, see Honigsmann (1928); Photinos (1970); MacAdam (1999–2000). The evidence that early Islamic geographers knew of Marinus' work with or without a map is regarded as doubtful by Wieber (1995). For Maes Titianus, see Ziegler (1968); Alemany i Vilamajó (2002); Heil and Schulz (2015).

¹⁹⁵ Bernard (2005: 930–9); Alemany i Vilamajó (2002) is in essential agreement, although dating Maes' enterprise more broadly between AD 91 and Trajan's Parthian War in AD 114–17. The reference to 'Upper Moesia' by Marinus (Ptol. *Geog.* 1.16) suggests a date after AD 86: Batty (2002: 4).

¹⁹⁶ Earlier, Kubitschek (1935: 235–6) argued for Alexandria and Cary (1956: 130) proposed Syria, both assuming the name was Semitic, but the onomastic evidence gathered by Bernard (2005: 930) and Alemany i Vilamajó (2002: 106–11) indicates the name is localized primarily in Asia Minor. Cary's attempt to find a context for Maes in the Augustan era after the Parthian settlement is rejected by Raschke (1978: 846, n. 795), and is generally ignored, with rare exceptions (McLaughlin 2010: 126–7), in recent discussions. See now Heil and Schulz (2015).

¹⁹⁷ Pelliot (1921). Natives of Bambyke (Mambij) are scattered all over Syria from Commagene (*IGLSyria* 1, no. 49), a group at Emesa dating to the first and second centuries AD (*IGLSyria* 5, 2609, 2607, 2687, 2707), Heliopolis in Lebanon (*IGLSyria* 6, 2731), and several in southern Syria (Waddington 2554, 2555). Note also the ethnic used for a woman (*mnbjyt'*) in a Nabataean Aramaic text at Petra in Arabia (*CIS II/I*. 422 with Clermont-Ganneau 1901). For the commercial role of Bambyke, see Goosens (1943: 120–6). For Mambog as the local Semitic name, see Pliny, *HN* V. 81 and Graf (1996: 206).

Maes's calculations, a product of merchants' preoccupation with commerce and not exploration, and their penchant for boasting (*Geog.* 1.11.4, 8). But, with Ptolemy discounting the figures and reducing them significantly, as well as adjusting the latitudes involved, the precise identification of the toponyms becomes difficult if not impossible, especially for the areas beyond Bactria.¹⁹⁸ The departure from Hierapolis and first leg of the journey are described in more detail. After crossing the Euphrates near Hierapolis, Maes proceeded through Mesopotamia to the Tigris and Assyria to Ecbatana, then through the Caspian Gates to Hecatompylos and the city of Hyrcania, and finally north to Antiochia Margiana (Merv) to Bactria. Nothing appears unreasonable about the itinerary except for the exclusion of the cluster of Parthian cities in southern Babylonia—Ctesiphon, Seleucia on the Tigris, and Vologaesias. The Han embassy of Gan Ying also appears to have taken the southern route across the Iranian plateau to these cities, although returning on the northern route back to the Far East.

Far more problematic is the route east from Basileion in Bactria. There is an ascent of the Komedai Mountains leading northwards, and then a descent to a town located in a ravine and an open plain along the foothills of the Komedai Mountains that led 50 *schoina* north-east to the Stone Tower. The identification of these toponyms and the landscape features remains controversial. The Stone Tower may be identified with Daraut Kugan and Sera Metropolis located in the Tarim Basin, but the other sites east of Bactria are difficult to locate. It appears that Ptolemy altered Maes's calculations, transforming 'réalités géographiques' into a 'mirage cartographique'.¹⁹⁹ As a result, the identification of the toponyms between Bactria and the Stone Tower remain a matter of speculation.

For the land of the Seres, Bernard suggests Ptolemy must have used another source for his toponyms, people, and villages.²⁰⁰ This 10,000 km journey purportedly consumed seven months, passing through three major kingdoms—those of the Parthians and the Kushans, and China. The conditions must have been appropriate politically, and this suggests the last two decades of the first century AD and sometime before Trajan's Parthian expedition of AD 114–16. This is precisely the time of the Chinese general Ban Ch'ao's tenure as 'protector of the Western Territories' (AD 91–101), when the entire Tarim Basin came under Han control, and a *pax Sinica* existed. Ptolemy adds that Marinus of Tyre placed little trust in the merchants' reliability either for the distances they provided or for the time involved in their journey. Nevertheless, Maes's account is almost the only evidence we have of an overland caravan route between Syria and China at this time.

¹⁹⁸ As noted in Humbach and Ziegler (1998). For Ptolemy's map of the Far East, see Stückelberger and Grasshoff (2006, 804–5).

¹⁹⁹ As Rapin (1998: 219) observes.

²⁰⁰ Bernard (2005: 960).

In addition, there is Ammianus Marcellinus' mention in the later fourth century of 'a very long road' utilized by traders who journey periodically to the land of the Seres, which leads from the land of the Sacae along the base of the mountains to a village named Lithinos Pyrgos ('Stone Tower') in the east (23.6.60). In China itself he mentions 'great walls that encircle and enclose the Seres' (30.6.64). Elsewhere, he indicates that, at Batnae near the Upper Euphrates, wealthy traders gather at an annual festival in September, to traffic in goods sent from India and China that are brought there in great abundance by land *and* by sea (16.3.3). It appears that Ammianus is aware of both maritime and overland routes leading to North Syria—that is, the so-called Silk Road. The problem remains connecting the various stages of the overland trade route that linked Syria to the Far East for the transit of silk and other luxury goods. Just as in the Far East, where Sogdians and Kushans may have served as intermediaries, Parthian merchants may have transported silk to the West. The problem is that these commercial activities are difficult to establish as they operate beneath our radar. Where this process becomes clear and visible is at the entry point of silk in the Roman eastern frontier, Palmyra in Syria (Fig. 15.5).

THE ROLE OF PALMYRA

In the West, this process of eastern trade becomes clear at the Syrian oasis at Palmyra, which appears to have been a primary receptor of silk from the East and a major distributor of luxury items to the Roman West. Of all the cities listed in Rostovtzeff's *Caravan Cities* (1932), Palmyra is by far the most appropriate and deserving of that title. The common assumption that its rise to prominence as a caravan city was the result of Roman inspiration and orchestration must now be questioned. The pre-Roman evidence for Palmyra stretches back to at least the second millennium BC. The rise of Palmyra as a caravan city in the Hellenistic period was once dependent mainly on Appian's account of Mark Antony's attack on the 'city' in the Syrian steppe in 41 BC (*B. Civ.* V.9). It has been argued that his record of the event is riddled with romantic embellishments and anachronistic distortions that reduce its historical value.²⁰¹ Whatever the case, Appian's account indicating Palmyra was occupied by merchants and was a depository of 'Indian and Arabian goods' has gained credence from recent excavations at the settlement. Between 1997 and 2010, sondages conducted in the large space south of the 'Roman' city apparently devoid of any ruins has revealed it was the location of a

²⁰¹ Hekster and Kaiser (2004).

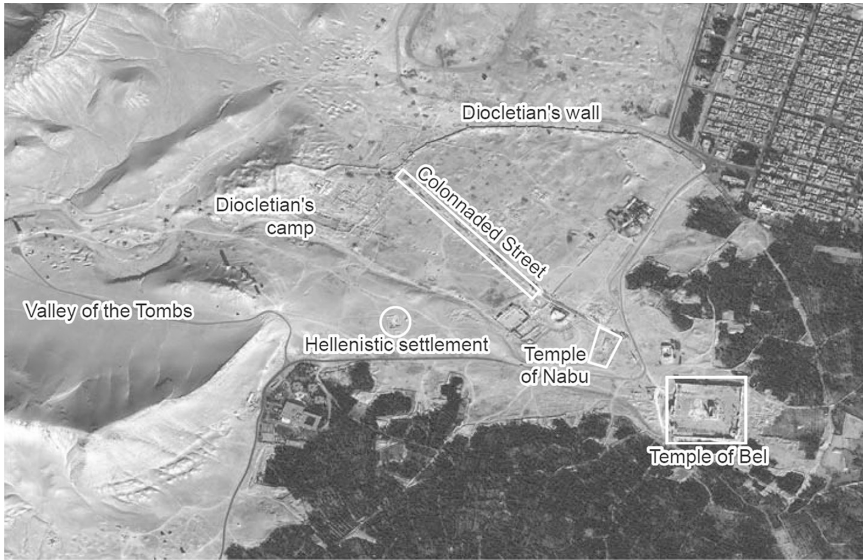


Fig. 15.6. Satellite image of Palmyra

(image courtesy of A. Schmidt-Colinet, with labels added by Chris Hanson; Quickbird imagery, copyright: Digital Globe/European Space Imaging and A. Schmidt-Colinet)

substantially large pre-Roman settlement (c.750 m E–W wide and 250 m N–S). The area lies just east of the tower tombs and south of the wadi that forms the southern border of the exposed Roman period settlement (Fig. 15.6).²⁰² The finds include third-century BC Rhodian amphorae and, by the mid-second century BC, imported glazed pottery and eggshell ware from Parthia, reflecting the international connections of the oasis at an early stage; by the mid-first century BC, a large ‘caravan building’ (khan) was constructed in the middle of the Hellenistic settlement.²⁰³ It is near this area, just north of the wadi, in the gardens along the ancient wall that guarded the ancient

²⁰² For the preliminary reports, see Schmidt-Colinet and Al-As’ad (2000; 2002–3); Schmidt-Colinet (2003); and, for the final report, Schmidt-Colinet and Al-As’ad (2013). Cf. Smith (2013: 5, 22), who describes the Hellenistic settlement as only a ‘small town’ and ‘substantial village’, without the results of the final publication. For a plan of the Hellenistic settlement, see Schmidt-Colinet and Al-As’ad (2013: i. 90, Abb. 29), which reveals both the complexity and extent of the Hellenistic ‘city’. For the early urban development of Palmyra, see the engaging study of Hammad (2010: 22–4).

²⁰³ For the pottery, see vol. ii of Schmidt-Colinet and al-As’ad (2013), in particular C. Römer-Strehl, ‘Keramik’ (pp. 7–32, 106–8) for the Rhodian amphorae, and Schmidt-Colinet, ‘Zusammenfassung’ (pp. 281, Abb. 231–3 (Hellenistic) and 284 Abb. 245 (Parthian)). For the khan or ‘caravan building’ (c. 30 × 30 m), see Schmidt-Colinet, al-As’ad, and al-As’ad (2008); al-As’ad and Schmidt-Colinet (2010a: 229–34; 2010b: 237–9); and P. Burger in al-As’ad and Schmidt-Colinet (2011: 162) for the 162 camel bones found in the khan. The most recent report of the khan is Schmidt-Colinet, al-As’ad, and al-As’ad (2013: 303, with fig. 15 for a plan of the khan).

settlement in the south, that the first epigraphic signal of Palmyrene trade was recently discovered, a text dating to AD 10–11, which may concern a camel tariff imposed by a collector appointed by ‘all the Palmyrenians’.²⁰⁴ The emergence of Palmyra as the nexus for international trade should definitely be assigned to the first century BC and the pre-Roman era.²⁰⁵

Even the Temple of Bel, the most prominent architectural landmark on Palmyra’s urban landscape, long considered the product of Roman imperial largesse, appears to be connected to the earlier Hellenistic settlement.²⁰⁶ The dedication in AD 32 of the temple pertains only to the northern adyton, not to the whole cella, and was only one of a number of dedications, stretching from AD 19 to late in the first century AD, marking a series of construction stages.²⁰⁷ The honorific inscriptions attesting to the development of the sanctuary reveal the benefactors are local Palmyrenes, residing in the cities of Lower Mesopotamia, not Roman imperial authorities.²⁰⁸ In fact, the earliest known dated Palmyrene inscription is a dedication of 44 BC by the priests of Bel from the earlier temple, signifying they were the primary agents in funding the construction.²⁰⁹ Archaeological support is provided by a sondage conducted in the eastern temenos, which revealed a row of columns parallel to the existing cella, suggesting there was a ‘Hellenistic’ predecessor to the later temple.²¹⁰ This would not be surprising, as the Temple of Bel was constructed on an ancient tell stretching back to the third millennium BC. This implies that the Hellenistic settlement south of the wadi was connected to the temple area north of the wadi in the Hellenistic period, which would significantly enlarge the earlier settlement, and further support the idea of the rise of Palmyrene trade in the pre-Roman era.

From the epigraphic perspective, however, the rise of Palmyra as a caravan city dates only to the early first century AD. The primary evidence consists of a small corpus of less than three dozen texts among the almost three thousand inscriptions from the Syrian oasis, most of which are in Palmyra’s own distinctive style of Aramaic, with numerous Greek bilinguals and a few with

²⁰⁴ PAT 2636 (*gbl tdmry’ klhwn*) = Gawlikowski and Al-As’ad (1993: 153–72), who note, at pp. 164–6, that *gmly* in the difficult text could refer to a suburban village ‘Gamla’ rather than ‘camels’; but cf. Gawlikowski (1994: 28). In contrast, Aggoula (1994) suggests the reference is to a ‘cemetery of cameleers’, given its location near the south-west necropolis.

²⁰⁵ As Henry Seyrig earlier observed (1950: 1).

²⁰⁶ For the temple, see Seyrig, Amy, and Will (1968, 1975). Colledge (1976: 45–52) suggests a large gift by a Julio-Claudian emperor is responsible for the construction; and Richmond (1963: 44) proposed that architecture was introduced into the nomadic settlement by Germanicus’ eastern embassy.

²⁰⁷ Kaiser (2006: 95–7). ²⁰⁸ Kaiser (2002: 67–79).

²⁰⁹ *Inv. XI. 100* = PAT 1524 = Al-As’ad and Yon (2001: no. 2). For the role of the priesthood in the construction and dedication of the temple, see Seyrig (1971: 94–7).

²¹⁰ Bounni and al-Maqdissi (2001: 17–34). See also Hauser (2007: 228–55). For the topography of Palmyra, see now Schnädelbach (2010).

some Latin texts.²¹¹ Most of these thirty-four texts were erected to honour local benefactors of successful commercial enterprises by the returning merchants of successful caravan expeditions.²¹² The earliest dedications are for the construction of the Temple of Bel by Palmyrene merchants resident in the cities of Lower Mesopotamia. The first, dated to AD 19, is by Palmyrene and Greek merchants from Seleucia on the Tigris.²¹³ It is followed by a text dated to AD 24 by the 'merchants from Babylon'.²¹⁴ The dedications indicate the trade was directed towards the commercial towns of the Parthian Empire, and that Palmyra at this time appears to have existed within the larger cultural milieu of Parthia that had its centre at the court of Ctesiphon, and whose influence extended to India.²¹⁵ In the interval, in AD 19, Tiberius sent the young prince Germanicus to Syria to negotiate with Parthia, and, on his visit to the Parthian vassal king of Mesene in the Persian–Arabian Gulf, he was accompanied by a Palmyrene envoy named Alexandros, probably a merchant.²¹⁶ By the mid-first century AD, this small kingdom, with its capital at Spasinou Charax, became the focal point for Palmyrene trade, and was where the Han envoy Gan Ying arrived in AD 97.²¹⁷ Vologaesias first appears in

²¹¹ The standard edition of the bilingual and Greek texts is now Yon (2012) in the *IGLS* series, abbreviated here as *PIY*. For discussion of the Palmyrene bilinguals, see Yon (2007).

²¹² Gawlikowski (1994: 32–3), lists thirty-four texts in his fundamental discussion; cf. (1995: 139–45); Yon (2002: 263–54) lists thirty-five honorific texts; and Shifman (1977) lists forty 'caravan' texts.

²¹³ *PIY* 24 and 25 = *Inv.* IX. 6a and 6b = *CIS* 3924 = *PAT* 0270 = Gawlikowski (1994: no. 1) = Delplace (2005: no. 24). For Seleucia on the Tigris, see Talbert (2000: 1305, Map 91 F4).

²¹⁴ *Inv.* IX. 11 = *CIS* II. 3915 = *PAT* 0261 = Gawlikowski (1994: no. 2) = Delplace (2005: no. 25). For Babylon, see Talbert (2000: 1302, map 91, F5). See Freyberger (1998) for the importance of temples with caravaneers.

²¹⁵ Seyrig (1950: 5–7) and Colledge (1987); cf. Gnoli (2007), who argues that Parthian influence on Palmyra has been underestimated. For Iranians at Palmyra see Yon (2002: 262), who observes that Persian names are extremely rare at Palmyra. The earliest Palmyrene text to mention Iranians is in AD 23 (*BS* III, 10 = *PAT* 0167), but the rest are after AD 95.

²¹⁶ Cantineau (1931: 139–41, no. 18) = *PAT* 2754. For Spasinou Charax, see Talbert (2000: 1329, map 93, D2–3). Alexandros was also involved in the Roman negotiations with Sampsigeramus of Emesa. For the possibility that Alexandros was a merchant, see Kaiser (2002: 37).

²¹⁷ The sixteen references and dates for Spasinou Charax are: AD 8 or 88 (*PIY* 240 = *Inv.* X. 7 = *PAT* 1366), in AD 70/71 (*PAT* 1584 = IP 34), AD 81 (*PIY* 241 = *Inv.* X. 40 = *PAT* 1376), AD 86? (*PIY* 425 = *Inv.* X. 127 = *PAT* 1421), AD 88/89 (*PIY* 243 = *Inv.* X. 19), AD 131 (*PIY* 245 = *Inv.* X. 38 = *PAT* 1374), AD 135 (*PIY* 209 = *Inv.* X. 81 = *PAT* 1397), AD 138 (*PIY* 227 = *Inv.* X. 114 = *PAT* 1414), AD 140 (*PIY* 246 = *Inv.* X. 112 = *PAT* 1412), AD 89 or 188 (Schlumberger 1961: 256), AD 146 (Milik 1972: 12–14), AD 156 (*Inv.* X. 111 = *PAT* 1411), AD 157 (*PIY* 248 = *Inv.* X. 87–8 = *CIS* II. 3960 = *PAT* 306), AD 159 (*PIY* 251 = *Inv.* X. 107 = *PAT* 1409), AD 161 (*PIY* 196 = *Inv.* X. 29 = *PAT* 1373), and AD 193 (*PIY* 194 = *Inv.* III. 28). For the significance of the concentration of these texts between AD 131 and 161, see Gawlikowski (1994: 29–30). An archon at nearby Forat, 17 km south on the Tigris, is honoured at Palmyra in AD 140 (*PIY* 246 = *PAT* 1412 = *Inv.* X.112). It has been suggested that the capital of Charax was moved to Forat by King Meredates/Mithridates (AD 131–150/1): see Nodelman (1960: 113); cf. Schuol (2000: 352–3). For a Palmyrene caravan from Forat in AD 142, see *PIY* 25 = *Inv.* IX. 14. Nabataean merchants earlier frequented Charax and Forat from across Arabia (Plin. *NH* 6.145).

Palmyrene texts in AD 108, but in the 'caravan texts' only between AD 132 and 150, and not again until AD 211 and 247.²¹⁸ There are sizeable gaps in the 'caravan texts', with only six dated to the first century AD, and none dating between AD 86 and 131, and again between AD 161 and 193, probably reflecting the impact of Trajan's Parthian War in AD 114–17 and Lucius Verus' Parthian expedition of AD 161–5, but this may partially be accidental.²¹⁹ The third century AD also is sporadically documented, with only a few texts dating to Sasanid rule in Iran, and ending with a text dated to AD 260. There is no indication in these texts of Palmyrene caravans travelling west towards the port cities of Phoenicia or the Syrian capital at Antioch. But Palmyrenes appear at Rome by the end of the first century or the beginning of the second century AD.²²⁰ By this time Palmyra had been incorporated in the Rome Empire and was well integrated into the Roman sphere.

If these dated 'caravan texts' are a reasonable index to Palmyra's commercial activity, the trade reached its apogee during the reigns of Hadrian and Antoninus Pius in the second century AD. Of the thirty-four caravan documents, nineteen date to the period between AD 131 and 161. Much of this activity revolves around two Palmyrene merchants. One is So'adu b. Bolyada, honoured by seventeen statues erected at Palmyra and its environs between AD 132 and 151, but also at Charax and Vologaesias, where he was also responsible for dedicating a temple to the Roman imperial cult, ostensibly outside the Empire.²²¹ The other is M. Ulpius Yarhai, for whom seven dedications were erected in his honour by caravans he sponsored in the same period. These local 'merchant princes' or 'super-notables' from commercial families dominate Palmyra's economic scene in the second century AD.²²² In spite of this documentation, we know nothing about what goods were involved in the commercial exchanges, and there is no reference to 'silk' or the 'Seres.' Even the famous bilingual Palmyrene Tariff in AD 137 provides little illumination, since it clearly involved only municipal taxes levied on purely

²¹⁸ *PIY* 23 = *Inv.* IX. 15, marking a contribution to a temple at Vologaesias (AD 108). The next of the eight caravan texts to mention Vologaesias is dated to AD 120 (*PIY* 25 = *Inv.* IX. 14) and the last to 247 (*PIY* 57 = *Inv.* III. 21). For Vologaesias, see Talbert (2000: 1307, map 91, F4).

²¹⁹ Gawlikowski (1994: 131); McLaughlin (2010: 59–60); and Smith (2013: 80, 137) speculate that the gap between AD 161 and 193 may reflect the impact of the Antonine Plague. During Trajan's Parthian campaign, when the army reached the Persian Gulf, a ship was witnessed sailing to India: Dio Cass. 68.29.

²²⁰ *CIS* II. 3902–4 = *PAT* 0247–50. See Belayche (2000: 578–9; 2007: 248) for the Palmyrene Syrian sanctuary at Trastevere in Rome, and Houston (1990: 189–93) for the date.

²²¹ For Sho'adu/Soados, see Yon (2002: 293 s.v.); cf. Drijvers (1995: 34–8).

²²² For Yarhai, see Yon (1998: 153–60; 2002: 288). Rostovtzeff's 'merchant princes' are entitled 'super-notables' by Yon (2002: 145). The complementary role of the leaders of caravans (*synodiarchs*) and their patrons (*archemporoi*) proposed by Will (1957) has been synthesized by Young (2001: 149–63), who suggests they were one and the same merchant individual, but see Yon (1998; 2002) and cf. Hartmann (2001: 52–64).

local internal trade within the region of Palmyra.²²³ There is not a shred of evidence in its lengthy lists for international trade or silk.

For this evidence, we must turn to the 'hard evidence' from the ruins of Palmyra itself. Finds of silk by Pfister in the 1930s, and later by the Polish Mission, were supplemented by the joint Syrian–German expedition to Palmyra between 1981 and 1990. The net result is several thousand fragments of textiles from the tower tombs in the western acropolis of the oasis.²²⁴ The fragmentary textiles were used as mummy wrappings—narrow strips cut from garments—and were found in nine of the tower tombs. These include a large amount of textiles produced locally, but some of the dyestuffs and fabrics were imported from India, including some made of silk that came from China. The latter comprise about seventy fragments of silk, the largest cache of Han Dynasty silk ever found outside China. The earliest finds of silk were in the Tomb of Atenaten dated to 9 BC, the Tomb of Kitot dated to AD 40, the Tomb of Iamblichus dated to AD 81, and the Tomb of Elahbel dated to AD 103. Collectively these discoveries dramatically increased the total far beyond the number of silk fragments found in Tomb 46 and elsewhere by Pfister in the 1930s.²²⁵ The dates for the tombs are simply *termini post quos*, since the tombs received burials for several generations after they had been constructed and dedicated. Nevertheless, a date for the silks in the first and second centuries AD seems likely, as the last dated tower tomb is AD 121, after which they were replaced by 'temple' tombs (Fig. 15.7).

Although the majority of the Chinese silk at Palmyra is unpatterned and simply woven, there are a handful of polychrome silk weavings richly decorated. In Tomb 46, the stripes display embroideries depicting wild beasts fighting with dragons, and others show flowers of different types. More significantly, some of the silk finds have Chinese characters as their design. In his important analysis of these finds, Lothar von Falkenhausen demonstrates that some of these can be traced back to imperial workshops in China on the basis of the logograms they use as designs.²²⁶ He makes two observations about these texts. First, they appear to represent independent decorative schemes. Secondly, the characters in the texts are formed so that each character is distinctive, even if integrated into the ornamental decoration. The sayings

²²³ Matthews (1984); cf. Teixidor (1983a; 1983b [Palmyrene version = C 2913 = PAT 0259]; 1984) and Shifman (2014). The Greek version will be the focus of Yon (forthcoming). Cf. Zuchowska (2013). For the local economy of Palmyra, see now Hoffmann-Salz (2015).

²²⁴ All the finds were the subject of restoration, conservation, and scientific research by the Syrian–German expedition: Al-As'ad et al. in Schmidt-Colinet (1995a, 54–72; 1995b); Schmidt-Colinet, Stauffer, and Al-As'ad (2000–3: 210–11 with n. 7). For earlier discussion, see Maenchen-Helen (1943).

²²⁵ For the earlier finds, see Pfister (1934: i. 39–63; 1937: ii. 34–9) including some silk from Dura–Europos; also Pfister (1940: iii. 39–63).

²²⁶ Falkenhausen (2000: 58–81, esp. 74, Kat. B 14–B15).



Fig. 15.7. Tower tombs at Palmyra, with the tower tomb of Kitot (Tomb 44), dated to AD 40, at far left

(photo: courtesy of Andreas Schmidt-Colinet)

essentially extend blessings for prosperity and longevity. Von Falkenhausen provides an excellent catalogue of early Chinese inscribed silk from 202 BC to AD 619, citing thirty examples of the Han dynasty, all but one dating to the eastern period of the Han Dynasty between AD 25 and 220. In the catalogue, twenty-four are listed for China, four for Mongolia, and two for Palmyra. The first is from Tomb 46 and has been known since Pfister's important work in 1938. It comprises a number of small fragments, the largest being 5.2×10.2 cm. The pattern is typical of the Xinjiang eastern Han materials. Only two words are visible: 'holy' (*ming*) and 'sublime' (*tai*), but the context is lost (Kat. B15). The other example is two fragments inscribed with yellow and blue on a red background, found in the Tomb of Kitot dated to AD 40 (Fig. 15.8). It contains the characters: 'year' (*nian*), 'long-living' (*shou*), 'son' (*zi*), and 'grandson' (*sun*) (Kat. B14). Here, a parallel with expressions on silk from China: 'great joy and splendour to your years... son and grandsons for 10,000 generations' is found on a Loulan (Xinjiang) silk now in the National Museum in New Delhi (Kat. B.7). As von Falkenhausen indicates, this ends the debate about the possibility that the silk was woven and produced in Iran. These silk fragments were clearly woven in the Chinese East. In addition, this large amount of Chinese silk weavings and silk embroideries at Palmyra also suggests that the export of Chinese goods in the early Roman Imperial era was of considerable quantity over a fairly lengthy period of time.

In contrast, other silk fragments indicate that Palmyra itself was an important centre for textile manufacturing and silk cloth production. As Annemarie

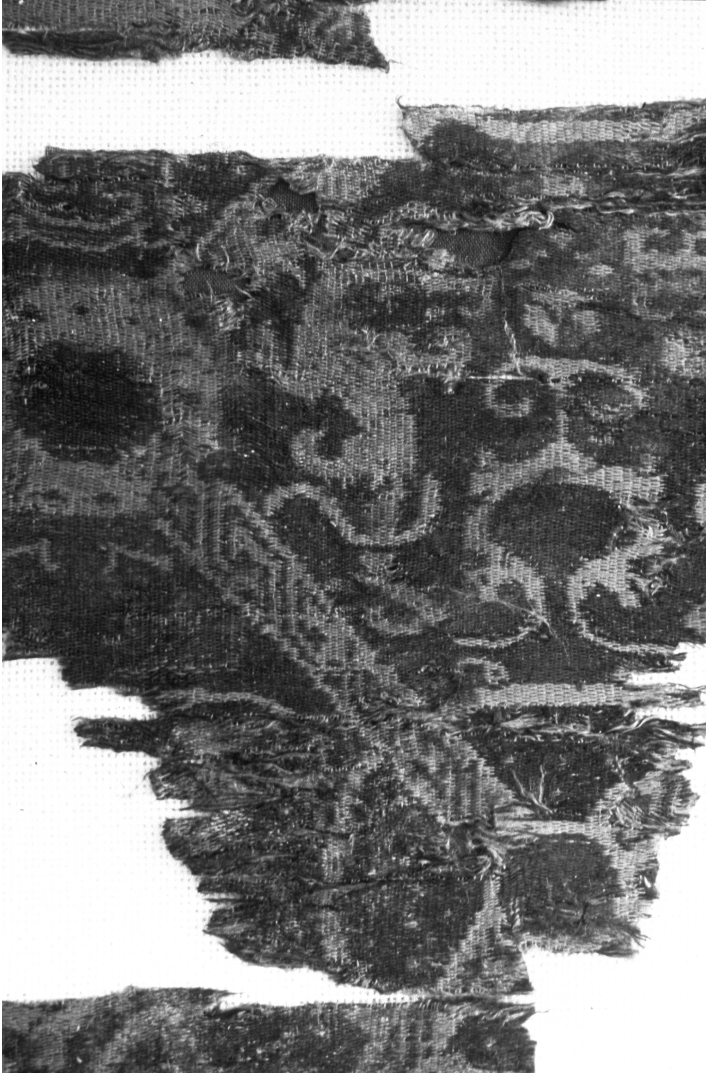


Fig. 15.8. Silk fabric from the tower tomb of Kitot (Tomb 44), with Chinese text ('year...long-living...son...grandson') woven into design. In Palmyra Museum until 2015

(Schmidt-Colinet, Stauffer, and Al-As'ad 2000: Farbtafel VIIIa, Kat. 223; copyright A. Schmidt-Colinet)

Stauffer has observed, some of the silk fabric was processed on 'Syrian' looms rather than the vertical 'Chinese' looms. In the Tomb of Elahbel, a silk has inwoven stripes of purple wool, suggesting it was produced locally.²²⁷ In other fabrics,

²²⁷ Stauffer (1996: 427).

there is also the blending of rewoven raw silk with wool, cotton, and linen that have local 'arabesque' architectural decoration.²²⁸ This reweaving of silk at Palmyra confirms the account in the *Wei-lüeh* that: 'Furthermore, they regularly make a profit by obtaining Chinese silk, unravelling it, and making *hu* [Western] silk damasks.' Finally, one tapestry has a depiction of kneeling camels and vineyards, although woven on a 'Chinese' loom.²²⁹ The richly decorated Chinese silk fabrics are strips 10–20 cm in width used in the wrapping of mummies, which raises the question of in what form and for what use these costly fabrics were acquired by the Palmyrenes. In China, outside the imperial court, they were not used as garments, but cut into strips and used as borders for silk cloths of a single colour. It is then at least possible that these decorated luxury goods arrived in Palmyra in the form of strips, to be used as 'exotic' trimmings to replace the locally produced wool borders of indigenous Parthian garments worn by the Palmyrenes.²³⁰

Roman interest in this foreign trade is indicated immediately after Germanicus' expedition in AD 17–19, when Palmyra was incorporated into Roman Syria and major changes become visible in its civic organization. The change is signalled by the dedication in the Temple of Bel, sometime between AD 17 and 19, by Municius Rufus, the *legatus* of the legion X Fretensis, of three statues to Germanicus, Drusus, and Caesar Tiberius.²³¹ In AD 25, an inscription mentions for the first time the 'treasurers and assembly of the Palmyrenes', which implies the financial administrators were among the chief magistrates of the city, and another text from AD 114 makes it clear they were serving as civic magistrates.²³² Perhaps by the death of Claudius in AD 54, a new tribe appears at Palmyra, the *phylé Klaudias*.²³³ The famous Palmyrene Tariff of AD 137 indicates that, in the time of Germanicus, tax assessments were made by a certain Statilius, probably the procurator in Syria.²³⁴ By AD 56/57, if not earlier, two Roman freedmen publicans were installed at Palmyra, ostensibly as 'tax-collectors' of foreign goods.²³⁵ Later, the issuing of the Palmyrene Tariff of AD 137 was precipitated by a dispute between the 'merchants and

²²⁸ Schmidt-Colinet (1995a: 46–52); Schmidt-Colinet and Al-As'ad (2002–3: 211).

²²⁹ Stauffer (1995: 71); Schmidt-Colinet, Stauffer, and Al-As'ad (2000: 145–6, no. 240).

²³⁰ Stauffer (1995: 57–71, esp. 63–70 for the Chinese silk strips).

²³¹ *PIY* 3 = *Inv.* IX. 2, and *Tac. Ann.* 2.37, which implies a visit of Germanicus to Palmyra with the legate; see Kaiser (2002: 37).

²³² *PIY* 17 = *Inv.* IX. 12 = *PAT* 1353, 'nwšt' wgl tdmry' (AD 25) and *CIS* II. 3994 = *PAT* 0340 (AD 114). For discussion, see Yon (2010: 230–3), who notes also the appearance of the *demos* and *boulē* at Palmyra in the same period.

²³³ Sartre (1996: 387); but cf. Milik (1972: 259–60), who takes the tribal name as derived from a Semitic name *kldy*; Yon (2002: 68 with n. 69) considers the proposed connection as 'possible, mais n'est pas assuré'.

²³⁴ *PAT* 0259, ll. 181–4 (Greek), 102–5 (Aramaic). For discussion, see Matthews (1984: 179, n. 30); Teixidor (1984: 10), and Yon (2002: 125).

²³⁵ Gawlikowski (1998), with *PAT* 0591, for L. Spedius Chrysanthus, 'tax collector' (*mks*) in AD 58.

tax-collectors' of the city.²³⁶ Although the famous tariff pertains only to local domestic trade,²³⁷ other Palmyrene texts indicate that foreign eastern goods entering the oasis were subject to the normal 25 per cent tax by the Roman fiscus.²³⁸ In AD 161, a senator from Syrian Antioch, Marcus Aemilius Marcianus Asclepiades, is designated as a *tetratones* (collector of the 25 per cent tax), and is honoured with a dedication in the Agora.²³⁹ In AD 174, another dedication in the Agora was made to another *tetratones*, L. Antonius Callistratus.²⁴⁰ These dedications make it clear that Palmyra was operated like a commercial *portus*.²⁴¹ In spite of the heavy levy, compounded with the risks and dangers of long-distance commerce by land and sea, caravan traffic to the East appears to have been profitable enough to outweigh such factors.²⁴²

How did these silk garments arrive at Palmyra? None of the Palmyrene texts mentions silk, and we can only surmise from the 'caravan' texts the focus and purpose of this trade. On the basis of what few details exist in these texts, the thrust of this commercial activity seems always to be directed down the Euphrates to the Arabian-Persian Gulf. Palmyrene presence at Dura-Europos begins as early as 34/33 BC, with an inscription recording the construction of a temple to Bel and Yarhibol, and increasing Palmyrene presence on the islands leading downstream to the Persian Gulf appears for the next two centuries.²⁴³ In contrast, between Pompey and the Severan dynasty, Roman presence was also restricted to the Upper and Middle Euphrates, between Zeugma and the Khabur.²⁴⁴

The route to the Gulf started by land, proceeding east to Dura-Europos, and then a number of fortified islands downstream in the Euphrates controlled by Palmyra, the so-called treasures of Parthia, of which the most important was Ana, where a *strategos* controlled the river to the town of Hit and the desert to the west (Fig. 15.9).²⁴⁵ Further downstream were the islands of Telbis and Bijan, 27 km from Ana.²⁴⁶ These islands in the Euphrates were used to

²³⁶ CIS II. 3313, I. 7 = PAT 0259, *tgr' lbyny mks'*; for translation, see Teixidor (1983b: 238; 1984: 99, I. 7, with discussion at 59–60).

²³⁷ Matthews (1984); Teixidor (1984). ²³⁸ De Romanis (2006: 62–9).

²³⁹ PIY 196 = Inv. X. 29 = PAT 1373, *dy rb'*, 'the tax collector of 25 per cent'.

²⁴⁰ PIY 197 = Inv. X. 113 = PAT 1413, *dy rb'*, 'the tax collector of 25 per cent'.

²⁴¹ Yon (2002: 125). The '*rbw*' in an inscription dated to AD 238–40 may represent 'four merchants' rather than the 25% levy or *portus*: Gawlikowski (1986: 89–99); *contra* De Romanis (2004; 2006: 62–6); cf. Contini (2004).

²⁴² For attacks on Palmyrene caravans, see Maraqtan (1996: 230–3).

²⁴³ PAT 1067. For discussion, see Gawlikowski (1988a); Casson (1989: 186); Millar (1998b: 476–7). Cf. Dirven (1996).

²⁴⁴ Edwell (2008: 1–15).

²⁴⁵ CIS 3973 = PAT 319 with Gawlikowski (1983: 56–63; 1987: 78; 1988a, b: 84–5).

²⁴⁶ Telbis = PAT 2810; Bijan: Gawlikowski (1983: 62). Hammad (2010: 145–55) suggests that caravans returning to Palmyra used the caravanserai north of the city for exchanges. But Dentzer (1994: 46–8, 96–107) points out such structures are found throughout the environs of the city and that hints of a date for these structures are third-century AD or later.

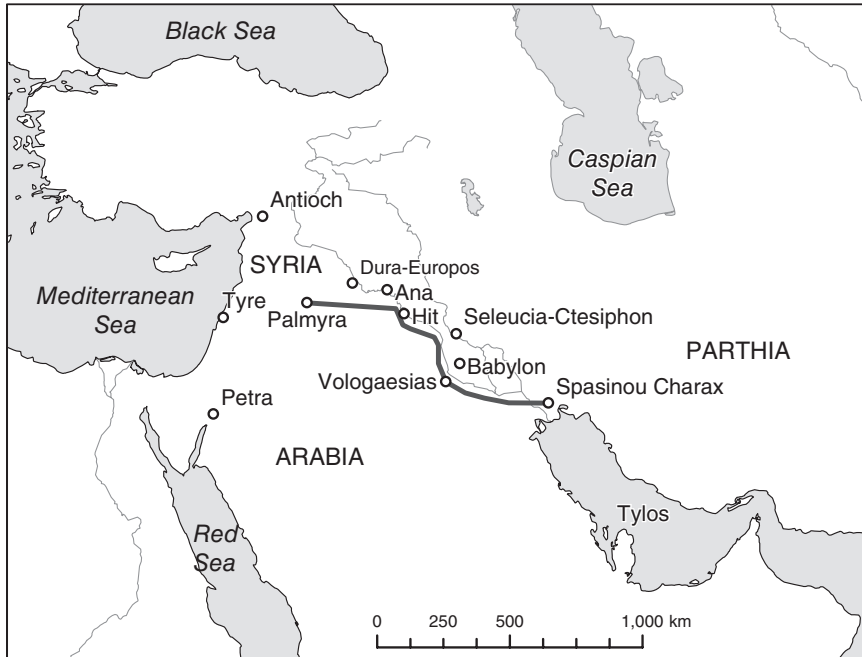


Fig. 15.9. Map of the caravan route from Palmyra to Charax and the Persian Gulf (map by Chris Hanson, after Gawlikowski 1994: 30)

transport merchandise downstream on floats or rafts to Vologaesias on the Maarsares ('royal river') and Spasinou Charax, where it could be exchanged for Far Eastern goods. The return upstream was by river only to Hit, where a caravan route led through the Wadi Hauran to Palmyra.

These commercial ventures involve mainly seaborne trade with 'Scythica', the *Saka* kingdom in north-west India.²⁴⁷ Traces of this commercial activity are found in the Persian Gulf. Tombs on the island of Khag and at Bahrain have been identified as Palmyrene, perhaps for Palmyrene officials, since, in AD 131, we know the king at Spasinou Charax appointed a Palmyrene as 'satrap of the Thilowanias', for whom the merchants of his kingdom erected statues in his honour at Palmyra.²⁴⁸ This evidence revives the memory of the third-millennium BC trade between Mesopotamia, Dilmun, and India.²⁴⁹

The caravan texts make it clear the merchants of Palmyra were sailing from the Persian Gulf all the way to India, which they designated as 'Scythia'. The earliest reference to these seaborne enterprises is dated to AD 157, when it is

²⁴⁷ Gawlikowski (1994: 29); cf. Whitehouse (1991: 216–18).

²⁴⁸ *Inv. X. 38* = PAT 1374, discussed by Potts (1990: ii. 145–8; 1997); Healey (1996: 33–7); and esp. Schulz (2000: no. 9 and discussion at 47–90 and 380–7).

²⁴⁹ Potts (1990: i. 93–191).

mentioned that a ship of merchants returned from 'Scythia'.²⁵⁰ The use of the term 'Scythia' must refer to the 'Kushans', known by the Chinese as the Yuezhi, who allegedly had been driven west into Bactria from Xinjiang by the Xiongnu. According to the *Periplus*, the area of the Indus Delta is already called the 'seaboard of Scythia', although its ports of Barbarikon and Minnagar were previously 'in the hands of the Parthians'.²⁵¹ But by the end of the first century AD, the heartland of India and the delta were under the control of the Kushans, when the inscription of Kaniskha the Great (c. AD 127–50), discovered at Rabatak in Afghanistan, makes it clear he was the 'ruler of all India'.²⁵² It was precisely under his rule that the Kushans expanded again into the Tarim Basin as far as Kashgar and Khotan. Hadrian reputedly received ambassadors from the kings (*reges*) of the Bactrians.²⁵³ According to the anonymous *Epitome de Caesaribus*, Antoninus Pius received embassies from the 'Indians, Bactrians, and Hyrcanians' sometime between AD 146 and 155.²⁵⁴ A little later, in AD 157/8, the Kushans were also sending gifts to the Han emperor, and more envoys from India were sent in AD 159 and 161, travelling by sea via the Han prefecture of Jinan in eastern China, followed by other embassies 'from beyond the barrier' in AD 173 and 183. Some of these embassies may have been from the Saka satraps in Gujrat (north-west India), rather than the Kushans.²⁵⁵ It is precisely during this flurry of diplomatic activity that the Palmyrene merchants were sailing to India, and when the Arabian–Persian Gulf became known as the 'Indian Sea' and *fines Indiae*.²⁵⁶ In support of the caravan texts, there is a relief of a ship, on a fragment of a sarcophagus in the Palmyra Museum, depicting a commercial sea voyage, which must date to this same period (Fig. 15.10).²⁵⁷ The sudden outburst of Palmyrene seatriade is firmly fixed to the mid-second century AD, when diplomatic activity between the Kushans and India was at its height. Among the items the Palmyrenes must have sought in India was silk, even if the silk finds at Palmyra date to the first century AD. Already in the mid-first century AD, the *Periplus Maris Erythraei* mentions that silk was imported from

²⁵⁰ PIY 250 = PAT 1403 and Inv. X. 95 = Gawlikowski (1994: nos 20, 24), and, for discussion, Delplace (2003: 158–67). Note Sind is already Scythia in PME 38, with Casson (1989: 186).

²⁵¹ PME 38.

²⁵² Sims-Williams and Cribb (1996: 91, l. 19, and 104–7). For the revised date, see Falk (2001) and Boppearachchi (2006: 1445) with a cautionary note on the chronology by Salomon (1998: 168–70; 2011: 168); cf. Hansen (2012: 248, n. 15).

²⁵³ HA, Hadr. 21.

²⁵⁴ *Epitome de Caesaribus* 15.4 (Teubner 151). For the date, see André and Filliozat (1986: 398, n. 385). This section seems more reliable than Aurelius Victor's *De Caesaribus*: for the sources, see Barnes (1976: 263).

²⁵⁵ Leslie and Gardiner (1996: 137, 153, n. 50) and Hill (2009: 240).

²⁵⁶ As noted by Salles (1996: 305).

²⁵⁷ From the Tomb of Marona dated to AD 185: see PIY 542 = PAT 117. My appreciation to Michal Gawlikowski for the information and Andreas Schmidt-Colinet for the photo (Fig. 15.11).



Fig. 15.10. Palmyra, sarcophagus relief of a seagoing ship, from a tomb with an inscription mentioning a Palmyrene captain who sailed to India

In Palmyra Museum until 2015 (photo courtesy of A. Schmidt-Colinet)

at least four of the major Indian ports: in the north-west at Barbarikon (39) in the Indus Delta, further east at Barygaza on the Namada River (49), and Muziris (56) and Nelkynda (56) on the far south-west Malabar coast.²⁵⁸ But it was at Barbarikon in particular that Chinese products were available—‘*Sirika* cloth and yarn’.²⁵⁹ These Palmyrene expeditions were not the sole seafaring ventures of the Syrian oasis.

In addition to the voyages to India, the Palmyrenes were sailing west in the Indian Ocean, past the port of Aden in South Arabia into the Red Sea and the Egyptian ports at Berenike or Myos Hormos.²⁶⁰ Inscriptions attest an association of ‘Palmyrene Red Sea Shipowners’ and a foreign colony of Palmyrenes, at Coptos in the reign of Hadrian.²⁶¹ The traces of their later activity are epigraphic. In the early third century AD, a Hadramautic inscription in South Arabia indicates that the king of the frankincense region hosted foreign envoys from Palmyra (*Tadmry*), Babylonia (*Kšdy*, ‘Chaldeans’), and India (*Hydy*, ‘Sind’), and the nearby kingdom of Ḥimyar.²⁶² In addition,

²⁵⁸ For the location of Muziris at Pattanam, see Shajan et al. (2004); Cherian, Selvakumar, and Shajan (2007); Cherian et al. (2013); and cf. Selvakumar, Shajan, and Tomber (2010); *contra* Gurukkal and Whittaker (2001).

²⁵⁹ Casson (1989: 22, 260).

²⁶⁰ Smith (2013: 160–3).

²⁶¹ AE (1912), 171; Bingen (1984: 356, ll. 4–5); cf. Casson (1989: 34, n. 53).

²⁶² Bron (1986: 95–8).

Palmyrene graffiti, including a cursive text dated to AD 257/8, have been found in the Hôq Cave on the island of Socotra, with other texts in Hadramautic and Indian scripts.²⁶³ In Egypt, Palmyrene presence at Berenike and Coptos is attested in the third century AD, including a unit of irregular Palmyrene archers, evidently as a desert patrol protecting caravans.²⁶⁴

It is therefore ironic, especially in contrast to Palmyra, that there is no *material* evidence for silk being transported to Egypt by sea in the early Roman Empire. Analysis of substantial quantities of textiles from the excavations at Berenike indicates Indian cotton, but not a trace of silk.²⁶⁵ Nor is the documentary evidence very illuminating. According to Strabo, in 26/25 BC, there were 120 ships sailing annually from Myos Hormos to India (2.5.2 [118]), and 'large fleets' were sent to India at the same time to bring valuable cargoes back to Egypt (17.1.13 [798]). Excavations in the ports in India have revealed Italian, Egyptian, and other Mediterranean pottery from the trade between the first century BC to the third century AD.²⁶⁶ There is also epigraphic evidence of the presence of Indian traders in Egypt.²⁶⁷ In spite of all this seaborne activity, the evidence for silk is minimal. In the Coptos tariff, dated to AD 90, there are interesting details about caravan traffic between the Nile and Red Sea ports, but nothing about silk.²⁶⁸ The 'Muziris' papyrus dated to the mid-second century AD deals with the shipping of goods from India to Egypt, including nard, silver, ivory (ii. 2–5), and 'fragments' (*schida*, ii. 25), which has been interpreted as 'Stoffballen' or 'lengths of fabric'.²⁶⁹ But *schida*, 'splinters, fragments', has also been understood as broken pieces of ivory (*elephas hugies*) (ii. 4), so that textiles may not have been represented at all.²⁷⁰ Of course, the absence of material evidence of silk in Egypt is an argument from silence,

²⁶³ Robin and Gorea (2002: 432–44); Strauch (2012).

²⁶⁴ For Berenike, see Sidebotham (2011: 153–4); for Coptos, see Bingen (1984: 355–8) and Speidel (1984: 221–4).

²⁶⁵ Sidebotham (2011: 243–4 with n. 235). Only Ottoman Silk damask and ikat appear among the textiles from the garrison at Qasr Ibrim in Lower Nubia: see Adams (2013: 65–81 at 78 with fig. 11a–b). Note also at Didymoi in the eastern desert a wool tunic in Damask twill, known also in a few silk fabrics: Cardon (2001: 12–20).

²⁶⁶ Williams (2004); Will (2004); Tomber (2007; 2012: 205–6) for Dressel 2–4 Types and Egyptian pottery; in general, Tomber (2008: 117–51). The 'rouletted ware' once assumed to be a Roman import at Arkimedu (Begley 1991: 176–81) appears now to be a product of India, either the Ganges Delta (Ray 2006: 79–80) or the southern Indian Peninsula (Begley et al. 2004: 631–42). For a concise summary of the evidence, see Tomber (2008: 44–6). The 'Romano-centric' view of Gurukkal (2013: 181–206) deprives the Tamil chiefdoms of any economic initiative. For Roman coinage in India, see Turner (1989), with the important analysis of MacDowell (1996: 79–94). In general, see Begley and De Puma (1991).

²⁶⁷ Salomon (1991; 1992).

²⁶⁸ *OGIS* II, no. 674 = *SB V* 4 (2955) no. 8904; for discussions, see Schmitthenner (1979: 95) and Burkhalter (2002).

²⁶⁹ Thür (1987: 233), 'Stoffballen', and Casson (1986: 73) 'textiles', and (1990: 201) 'lengths of fabric'.

²⁷⁰ Rathbone (2001: 45). See Morelli (2011) for a recent discussion of the Muziris Papyrus.

and it would not be surprising if future excavations of the Egyptian seaports discover silk.

Nevertheless, the area was penetrated by Roman shippers. Pliny recounts how, during the reign of Claudius (c. AD 41–4), Annius Plocamus, a freedman of an Egyptian tax-collector, sailing from Egypt to India, encountered a storm that swept his ship astray into a harbour on Taprobane (Sri Lanka/Ceylon), where he was befriended by the king, and precipitated an embassy from the island to Rome.²⁷¹ The diplomatic mission brought interesting information about the island, including that a native of the island had visited China beyond the Himalayas, and that Taprobane merchants engaged in trade with the Chinese on the coasts, who are described as ‘golden-haired’ and ‘blue-eyed’.²⁷² In any case, the impact of these interactions appears to have been minimal. The importance of Sri Lanka for the long-distance maritime trade in silk with Central Asia must be placed much later, in the fourth and fifth centuries.²⁷³ It has also been assumed that Roman ships earlier proceeded eastwards only to the area between India and Taprobane.²⁷⁴ In contrast, Marinus of Tyre recorded that a certain Alexandros, a merchant or explorer, sailed as far east as Kattigara (either Oc-Eo or Jiaohzi) in the Mekong Delta of Vietnam.²⁷⁵ Any incentive to sail into the Gulf of Bengal or further east for silk seems dismissed by the *PME*, which indicates the only textile available beyond the Peninsula was cotton at Taprobane (61), and at Masalia (62) and Ganges (63) in the Bay of Bengal. It should be noted that a local variety of silk was being produced in India for a millennium earlier, probably from a wild indigenous silk moth species.²⁷⁶ The *PME* fails to mention this, but indicates

²⁷¹ Plin. *NH* 6.84–8. The king was particularly impressed with the Roman *denarii* carried by the freedman, but ‘political overtones’ have been detected in the account. For discussion, see Weerakkody (1997: 51–63); De Romanis (1997b: 161–237, esp. 189–228); and McLaughlin (2010: 117–20).

²⁷² Lieberman (1957: 174–7) suggested Pliny’s ‘Chinese’ were speakers of Indo-European (Tocharians) from western Turkestan, Bactria, and northern India. Sergent (1998: 7–40, at 24–8) suggests they are Tocharians from Xinjiang, as they are from beyond the Himalayas.

²⁷³ Bopearachchi (1997–8: 272); but the numismatic evidence suggests there was no direct commerce between Rome and Sri Lanka in the first three centuries AD: see Bopearachchi (1992: 110), and in Weerakkody (1997: pp. xvii–xix). The few (8) Roman Republican issues (144–49 BC) at Sri Lanka probably arrived there only in the second century AD: Weerakkody (1997: 151–70, at 153). Only seventeen early imperial Roman issues are known on Sri Lanka, and the vast majority of these are post-Neronian.

²⁷⁴ Casson (1989: 24). It appears the north-west port of Mantai on Sri Lanka was a point of transshipment of goods for long-distance shipping, and may be Ptolemy’s emporium called Modutti: Carswell (1991: 197–203). Even earlier, there is Indian pottery at Sumhuran in Oman in third- to first-century BC contexts, and similar finds of the same date at Tissamaharama in south-east Sri Lanka: Pavan and Schenk (2012).

²⁷⁵ Ptolemy, *Geog.* 1.14.1–3; cf. 17.3. For Marinus, see MacAdam (1999–2000). J. Hill (pers. comm.) would identify Kattigara with Jiaohzi.

²⁷⁶ Good (1995: 959–68) and Good, Kenoyer, and Meadow (2009: 457–66) for new finds of silk fibres dated to the Harappan culture in c.2450–2000 BC. For later periods, see Gulati (1961:

that, further to the north, 'silk floss, yarn, and floss' were available at the remote and virtually inaccessible great inland city of Thina, 'where the sea ends on the outer fringe', whence they were transported overland through Bactria to Barygaza on the north-west coast of India or by the Ganges to the Malabar Coast (64). Nevertheless, the shortest route to the West would have been through Bactria overland across the Iranian plateau to the Parthian emporia in Mesopotamia.

In exchange for silk and exotica from the Far East, Pliny and Tacitus indicated that there was a dramatic drainage of imperial currency. The evidence for these statements has been found in the Roman gold and silver hoards discovered primarily in southern India, exactly where the *PME* attests Roman currency was exchanged for commodities at the Indian ports.²⁷⁷ However, the assumption that Roman coinage was melted down by the Kushans to produce their own gold coinage must be rejected on the basis of recent analyses.²⁷⁸ In addition, the *PME*'s listing of Roman products is a great deal more diverse than just metals and coinage offered in exchange in India.²⁷⁹ Whatever the case, maritime trade between Rome and India was obviously flourishing throughout the early Roman imperial era, but there is no reason to view sea trade as the sole commercial artery to the East.

THE OVERLAND CARAVAN ROAD BETWEEN SYRIA AND THE FAR EAST

As this summary of Palmyrene sea trade indicates, the primary evidence for seaborne commerce is in the second and third centuries AD. The earliest 'caravan inscription' to mention the Palmyrene voyages to India is not until AD 157. In contrast, the finds of silk in the tower tombs in the Western Necropolis at Palmyra all date from between 9 BC and AD 103, before the dated

55–8). Gopal (1961: 61–9) and Varadarajan (1988) discuss Indian terminology for silk; see Basham (1983: 93–105) for an Indian guild of silk-weavers.

²⁷⁷ Although the use of Roman money is minimized by the *PME* in Africa (5, 8), it progresses to substantial amounts in the Indian ports (39, 48, 56). For the Indian coin hoards, see Turner (1989) with Berghaus (1999: 37–60). For the second century AD, see Martino and Nappo (2009). De Romanis finds evidence of *aurei* as 'travel cash' in a Palmyrene text of traffic between Spasinou Charax and Palmyra: *PAT* 0294 = *CIS* 3948 with De Romanis (2006: 66). See also Alram (2004: 47–68) and Fitzpatrick (2011: 47).

²⁷⁸ Analysis of Roman gold coinage from Augustus to Trajan indicates less platinum than is contained in Kushan coinage: see Blet-Lemarquand (2006).

²⁷⁹ See Casson (1989), pp. 27–9 for metals, and pp. 39–43 for a list of all the objects of trade. Walser (2001: 81–107) argues that Roman trade was primarily 'barter-trade', in which money played a minimal role.

documentation of the Palmyrene sea voyages.²⁸⁰ Of course, the tombs were reused later, so the burials were disturbed and plundered even in modern times, but it would be adventurous to assign all the silk fragments to a later date. Moreover, there appears to be a shift in Palmyrene activity in the Parthian realm. As previously observed, the earliest 'caravan texts' involve Palmyrene and Greek merchants at Seleucia in AD 19 and Palmyrene merchants at the 'city of Babylon' in AD 24. These are the *only* references to these cities in the entire Palmyrene corpus. Afterwards, they are replaced by Spasinou Charax sometime before AD 88 and Vologaesias in AD 108. Those two cities dominate the caravan texts thereafter, when Mesene seems independent from Parthia and was perhaps within the Roman sphere of influence.²⁸¹ The earlier situation may reflect more friendly relations with Parthia, changing perhaps in the reign of Vespasian.²⁸² Iranian presence at Palmyra is also reflected in the onomasticon from as early as AD 23 and throughout the second century AD.²⁸³ If this is the case, it is possible that the Palmyrene merchants at Seleucia and Babylon inside the Parthian realm were obtaining eastern goods including silk by exchanges with foreign traders from even *farther* east, making unnecessary the long sea voyage through the Persian Gulf and Indian Ocean. The possibility that the overland caravan route functioned across Afghanistan and the Iranian plateau to the Parthian emporia in Mesopotamia should not be discounted.

The problem remains the shortage of evidence for the overland route across the Iranian plateau, although such commercial arteries clearly existed.²⁸⁴ As early as Pompey's eastern expedition, in the midst of the Third Mithradatic War, Pliny indicates that a route was explored by Marcus Varro. It ran between Pontus and Afghanistan, and meant that Indian merchandise could be brought across the Caspian to the Kur and on to Pontus within just two weeks (*NH* 6. 52). In spite of the difficulty in defining and describing the precise

²⁸⁰ The Palmyrenes are noticeably absent in the *PME*. Note also that the Japanese excavations of half of the twenty tombs (dating to the second century AD) in the south-eastern necropolis 1.5 km south of the Temple of Bel have failed to yield any silk: see Higuchi (1994) for Tombs A and C, and Higuchi and Saito (2001) for Tomb F. For general summaries of the excavations, see Saito (1995) and Higuchi (1998: 63–6).

²⁸¹ *PIY* 240 = *Inv.* X, 7 = *PAT* 1366 ('Charax', restored) and *PIY* 40 = *Inv.* IX, 15 = *CIS* II. 3917 (Vologaesias); cf. Gawlikowski (1994: 28–30).

²⁸² Dabrowa (1981; 1983).

²⁸³ *PAT* 167 (AD 23); *PAT* 482 (AD 95); *PAT* 342 (AD 125); *PAT* 314 (AD 135); *PAT* 819 (AD 147). For a list and discussion of Iranian names in Palmyrene texts, see Yon (2002: 262).

²⁸⁴ For example, in the third century BC, the Mauryan king Aśoka sent his ambassadors to the west to spread his *dhamma* beyond his frontiers. They allegedly made contact with the Hellenistic kings of the Seleucid, Ptolemaic, and Macedonian realms, evidently by a land route across Iran: see Karttunen (2012). In contrast, Raschke (1978: 630) offers a pessimistic appraisal for a land route, while, on pp. 820–1 and n. 726, he makes an opposite, persuasive case for an overland route through Parthia.

itinerary of this 'Trans-Parthian' commercial route, there are numerous indications that it existed and was an important artery, which are outlined here.

First, the shifting of Parthian centres across the Iranian plateau in the Hellenistic period must have created a transportation lattice between these administrative locations. The first capital of the Arsacids was at Nisa in modern Turkmenistan, on the eastern end of the Iranian plateau. Excavations have produced inscriptions, *bullae*, and ostraca dating from the third to the first centuries BC, but nothing that illuminates the silk trade or contacts with the Far East.²⁸⁵ Sometime after 200 BC, the Arsacid capital or centre shifted to Hecatompylos, which has been identified with Shar-I Qumis in the Semnan province of Iran, also on the eastern frontier.²⁸⁶ Afterward, the Arsacid capital shifted to Ctesiphon, located on the east bank of the Tigris opposite Seleucia, with both cities serving as administrative centres for Babylonia and the terminus for the long-distance luxury trade along the Silk Route and the Indian sea trade through the Persian Gulf.²⁸⁷ *Secondly*, there is archaeological evidence for a Central Asian trade in the Seljuk period consisting of a string of caravanserais every 10 km between Merv and the 'Hunger steppe', with associated guard posts and signal towers, and documented by Arabic-Persian texts, which has created suspicion that a similar route previously existed in the Achaemenid and Parthian period.²⁸⁸

In addition, the Chinese Han records indicate that diplomatic traffic existed between the capitals of the two major empires by the first century BC. Under the Han emperor Wudi, a Chinese delegation was sent to the Parthians and the embassy was received by Mithradates II, who responded by sending a Parthian embassy to China sometime between 110 and 106 BC. In the Han Dynasty texts, 'Mulu' has been identified with Merv, and 'Hedu' with Hecatompylos.²⁸⁹ Later, Parthian embassies were sent to the Han Court in AD 87 and 101.²⁹⁰ By the Sasanian period, there was a flourishing sericulture in Iran, although the etymology of the Iranian word for 'silk' (*abrīšam*) remains mysterious.²⁹¹ It may be assumed that this is the product of earlier trade contacts between the two regions.

Nevertheless, doubts have been expressed about the existence of an over-land trade across the Iranian plateau in the Arsacid period.²⁹² In response to

²⁸⁵ For Nisa, see Invernizzi (1999; 2010); Invernizzi and Lippolis (2008). For the ostraca, see Diakonoff and Livshits (1976–2004); Livshits and Nikitin (1995), and Livshits and Pilipko (2004). For the *bullae*, Nikitin (1993–4). For a summary of the Italian Mission at Nisa between 1990 and 2008, see Lippolis and Messina (2008) and Kosheleuko (2009). For some inscribed silver bowls from Omsk in south-west Siberia, with Parthian inscriptions of the second–third centuries AD, see Livshits (2003).

²⁸⁶ Hansman and Stronach (1974).

²⁸⁷ Tacitus, *Annals* 6.42; cf. Strabo, 16.1.16 [743], referring to the 'winter residence' of the Arsacid kings; Kröger (2002: 446–8).

²⁸⁸ Brentjes (1991; 1999); cf. Kleiss (1987). ²⁸⁹ Hill (2009: 1–5).

²⁹⁰ Pulleyblank (2000: 999). ²⁹¹ Eilers et al. (2000: 229).

²⁹² Gawlikowski (1994: 29); cf. Raschke (1978: 930).

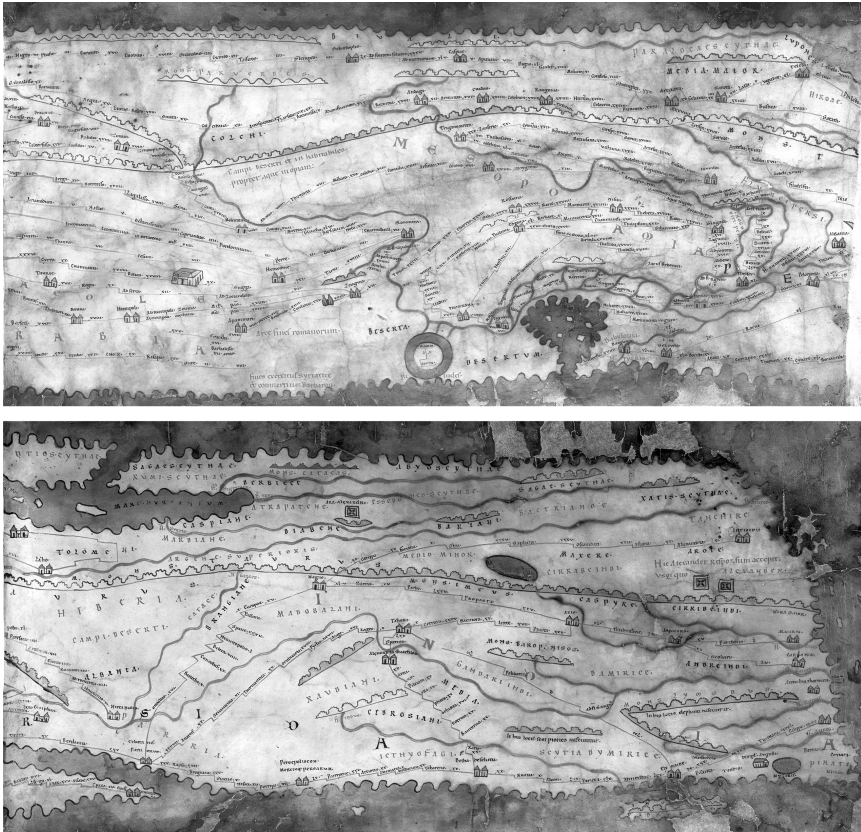


Fig. 15.11. Peutinger Map, sections X–XI, showing Parthia and the routes across the Iranian plateau to India

(by permission of the Österreichische Nationalbibliothek, Vienna)

these criticisms, it should be observed that the routes across the Iranian plateau to India, preserved on the Peutinger Map (Fig. 15.11), have been ignored.²⁹³ Beyond the imperial frontiers, the map depicts a road system that stretches much farther east beyond the Euphrates. That map route crosses Iran with a terminus in India and Taprobane (Sri Lanka). After crossing the Euphrates at Zeugma, just east of Edessa, the road passes through *barbarorum* on the way to Nisibis (XI. 4), which has been identified with a *commercium*.²⁹⁴

²⁹³ For the date and purpose of the Peutinger Map, see Talbert (2010: 133–6), who argues for a *terminus post quem* as early as the first century AD, based on its inclusion of the Campanian cities destroyed by Vesuvius in AD 79, at least for the prototype of Italy, but that its basic design and presentation suggests that the original was produced in the reign of Diocletian.

²⁹⁴ Balty (1999: 181). Altaweel and Hauser (2004: 72–7) suggest the winding path on the *Tabula Peutingeriana* from Nisibis eastwards indicates a path through the Zagros mountains,

Another indication of the overland Iranian route may be reflected in literary sources.

In c. AD 71–5, Dio Chrysostom alludes to the cosmopolitan nature of the spectators in the theatre in Alexandria, who included, not only various ethnic groups from around the Mediterranean, but foreigners from the East including ‘Bactrians and Scythians and Persians and a few Indians’.³⁰⁰ Perhaps a decade later, he indicates that ‘Persians and Bactrians and Parthians’, wearing turbans and trousers, were as numerous in Rome as ‘shoemakers and fullers’.³⁰¹

From a more hypothetical perspective, in the third century AD, Philostratus’ *Life of Apollonius* depicts the philosopher’s journey from Syria across Parthia to visit the Wise Men of India, ostensibly sometime in the reign of Claudius, but probably reflecting the contemporary political views of the later Severan court. Although an imaginary and fictional story, enmeshing a spiritual journey with anachronistic details derived from Alexander the Great’s military campaign and the Achaemenid Empire as described by Herodotus and Ctesias, it is not inconceivable that such a journey reflected the realities of the early imperial period.³⁰² Accompanied by his personal ‘shorthand writer’ and ‘calligrapher’ from Antioch, and his friend Damis from Ninos (Hierapolis/Bambyke in nearby Syria), who recorded his exploits in his ‘scrapbook’, Apollonius declares his ‘possessions’ at the Roman customs post at Zeugma, and crosses over the Euphrates to enter Parthian territory.³⁰³ After passing through Armenia and the ‘Arabia’ in Upper Mesopotamia, he proceeded to the Parthian capital of Ctesiphon into the environs of Babylon, where he encounters a ‘royal guard post’ and was forced to declare his identity and nationality, and the purpose of his voyage. At this point, Apollonius and his entourage were taken to the governor, to whom he indicates that his destination is to see the king of India. The governor then takes him to the Parthian king Vardanes (c. AD 36–45), who befriends him, provides gifts, and then provides him with a royal caravan, a guide, camels, and plenty of water for the three-day trek across the waterless country, before he takes the Caucasus road through prosperous and friendly large villages on the way to Taxila and King Phraotes in India, to meet the fabled Wise Men.³⁰⁴ Admittedly, the account is

³⁰⁰ Dio. Chrys. *Or.* 32.40; for the date, see Jones (1978: 135).

³⁰¹ Dio. Chrys., *Or.* 72.3; for the date of ‘c. 85 or later’, see Jones (1978: 135).

³⁰² Elsner (1997: 29), who observes that the journey is ‘mainly constructed from a whole gamut of travellers’ tales’. But Jones (2005: i. 11) notes ‘such a journey is not inconceivable for a philosopher of the imperial period, or even before’, and provides examples.

³⁰³ Jones (2001: 191) notes Apollonius actually recites his virtues (‘Sophia’, ‘Euphrosyne’, etc.), but the tax collector (*telônês*) mistakes the abstract feminine nouns for the names of female slaves or prostitutes, a primary commodity subject to customs dues. See also Reger (2007: 268, n. 13).

³⁰⁴ Philostr., *VA* I. 18–21, 28–33, 41–2; II. 1, 26–40.

riddled with exotic and legendary elements, and the accuracy diminishes rapidly once Apollonius enters 'the *terra incognita* of the Parthian Empire'.³⁰⁵ But the story must reflect the contemporary and earlier perceptions of travel across the imperial borders into Parthia, with checkpoints and guard stations along the way, impressions derived from real experiences. Travel through Parthia was purportedly not unhindered or unchecked by imperial officials monitoring passage into and exiting from their territory. Moreover, if Sogdians traversed the difficult terrain east into China, it is not unlikely that they were also the carriers of silk to the west, at least as far as the emporia in Parthia.

What were the actual realities of entering the Parthian empire and crossing the Iranian plateau? The focus for Parthian commerce must have been the cities of Babylon, Seleucia, and Ctesiphon, interconnected by a royal canal system that linked the Tigris and the Euphrates (Ammianus Marcellinus 24.2.7; 24.6.1), with the addition of Vologaesocerta established by Vologaes I (c. AD 51–75). According to Isidore of Charax, there was a 'customs house' (*telōnion*) at Bazigraban, strategically placed just before Ecbatana.³⁰⁶ This was located on the main route over the Iranian plateau that passed from Babylonia north past the limestone cliffs of Bisitun (with the monumental carved reliefs and inscriptions of Darius the Great) to Kermānshāh and Hamadān (Ecbatana). The route then traversed the Caspian Gates to Hecatompylos, and then to Merv (Antiochia Margiana), and either Samarkand in Sogdiana or Bactria and Taxila in Pakistan, ending in India.³⁰⁷ Although it is assumed that the Parthians monitored the trade and had customs houses located at the frontier cities, the evidence is virtually lacking for the taxing of merchants passing through Parthian territory.³⁰⁸ But the pattern of Isidore of Charax's *Parthian Stations* is clear. Between Zeugma and Seleucia in Mesopotamia, there are two 'royal stations' (*stathimos Basilikos*), a number of 'fortified' stops, and some walled villages, all along the frontier zone, as one would expect. But east of Seleucia, these all disappear, replaced by mere 'stations' (*stathimoi*) in various villages across Lower and Upper Media, as well as the 'customs house' near

³⁰⁵ Jones (2001: 193).

³⁰⁶ Isidore of Charax, *Parthian Stations* 6; Millar (1998a: 277) rejects Isidore's itinerary as reflecting 'trade routes' or the 'silk road' without reference to this passage. If the treatise known as the *Parthian Stations* was produced in conjunction with Gaius Caesar's eastern expedition in AD 2, this may be precisely the case, as Augustus' interest seems to have been the trade routes to India, by land and sea: see Roller (2003: 228–31).

³⁰⁷ Frye (1993: 61). Ecbatana also controlled the major east–west road through the central Zagros: Brown (1998: 82). For Hecatompylos, see Hansman and Stronach (1974). For Merv, see Williams, Kurbansakhatov, et al. (2003), and Herrmann, Kurbansakhatov, and Simpson (2001).

³⁰⁸ During the Sasanid period, commercial exchange between the Roman and Persian empires was regulated at Callinicum and Nisibis in northern Mesopotamia and Artaxata in Armenia: Floor (2002: 470). But for the Parthian period, almost nothing is known beyond Isidore of Charax's statement: Frye (1993: 62).

Ecbatana already noted, and the pattern continues to and beyond the Caspian Gates (§§3–11). It appears that the fortified royal stations have been replaced by 'private inns', which provided lodging for merchants. The archaeological evidence of Parthian 'caravanserais' is sparse, but several possible stations have been identified at Kharkor and Tepe Azima in western Iran.³⁰⁹ The later Sasanid interest in constructing bridges and caravanserais perhaps reflects a similar policy of facilitating overland trade, and their constructions may have utilized earlier Parthian foundations.

In addition, as a reflection of the overland trade route, all along the eastern frontier, there were a number of international 'fairs' in late antiquity. The antecedents for these commercial affairs must be in the earlier Roman Imperial period, where the evidence is rather sparse.³¹⁰ Ammianus Marcellinus mentions the annual fair at Batnae in AD 354, where wealthy traders gathered to purchase the products of India and China, which were brought in great abundance 'by land and sea' (14.3.3.). In addition, he mentions the annual fair at Amida on the Tigris in AD 359, where 'foreign traders' (*commercii peregrini*) also gathered (18.8.13). In the Cilician harbour of Aegae, there was an annual fair that lasted forty-nine days, during which oriental merchandise was received from Antioch.³¹¹ A fifth- or sixth-century customs list from the nearby Cilician town of Anazarbus mentions 'raw silk' (*metaxar*).³¹² At Edessa in the sixth century, another month-long festival is reported in which exchanges could be conducted tax free.³¹³ These North Syrian and Mesopotamian fairs must have had counterparts in the rest of the Levant, especially in Palestine and Syria. Rabbinical literature indicates that there were three major fairs in Palestine: at Gaza, Accor (Ptolemais), and Botna (Mamre) near Hebron, considered the most blatantly pagan of the three and where Hadrian had sold Jewish captives after the Bar Kochba Revolt.³¹⁴ The numismatic evidence from the excavations at Mamre indicates that the fair was widely attended from all over the Mediterranean, but ceased around AD 400.³¹⁵ It is surprising that there is no such evidence in south Syria or Roman Arabia for an international fair, even among the Greek cities of the Decapolis, but this must be considered purely accidental.

³⁰⁹ Kleiss (1975b: 135–6, Kharkorum) and (1975a: 126–7, Tepe Azima), cited in Raschke (1978: 821, n. 726).

³¹⁰ De Ligt (1993: 89).

³¹¹ Theodoret of Cyrrhus, *Ep.* 70, and Theodosius, *De Situ Terrae Sanctae* 32, are cited by de Ligt (1993: 69).

³¹² Dagron et al. (1987: 171 = no. 108, 13).

³¹³ Gregory of Tours, *The Glory of the Martyrs* 32 = Migne PL 71,733b.

³¹⁴ JT *Avodah Zarach* 1,4,39d, and *Gen. Rabbah* 47:10. The fair at Mamre may be Herodian in foundation: see Magen (1993; 2003: 254). For Hadrian, see the *Chronicon Paschale* 613 (Dindorf 1832).

³¹⁵ Safrai (1994: 256). The 1,275 Roman–Byzantine coins are from Spain and Gaul in the West across the whole Mediterranean.

The existence of these trade routes across the Iranian plateau to India and Afghanistan would not have required any Palmyrene long-distance caravans, as silk and other Far Eastern goods could have been obtained from other traders at the emporia at Seleucia-Ctesiphon and Babylon without the burden of great expense and effort by Palmyrenes. There is one piece of evidence of such involvement that should be removed from consideration. In 1956, two Palmyrene funerary stelae were discovered in the Vekil'-Bazar district about 12 km east of Merv—in ancient Margiana—which suggested initially the first archaeological signal of an overland caravan to the Far East used by Palmyrenes. One of the stelae bore a life-size relief of a young girl, and the other the bust of a man without beard or moustache. Both stelae were inscribed in Palmyrene Aramaic and constituted the first Palmyrene monuments found east of the Syrian oasis: in Iran, Afghanistan, or Central Asia. The find was immediately celebrated as evidence of the international silk road that connected Syria with China.³¹⁶ Moreover, the patronymic of the young girl indicated that her grandfather could be Taymarsu, the son of a synodiarch (*rb syrh*), who was also the organizer and financier of caravans at Palmyra in AD 193.³¹⁷ In addition, a stele at Palmyra was also cited with the same inscription, but with the addition of a date to the year AD 189, which seemed to confirm the association. This led to the assumption that the wealthy Taymarsu erected a cenotaph for his niece at Palmyra, and sent another stele to be erected at her grave at Merv. The other stele was inscribed with the name 'Mazzabana son of Br' and was considered to be of similar date.³¹⁸

This remarkable discovery of the existence of a Palmyrene merchant colony 1,600 km from the Syrian oasis seemed incredible at the time. It was immediately suspected that the real provenance of the Palmyrene stele was the Syrian homeland. The location of the find in Vekil'-Bazar was on the property of Ataman Jazdurly, in what was once a medieval farming village. It had formerly been the residence of a 'non-Russian colonel' by the name of Maksud Alihanov-Avaskij, the governor of the Merv district between 1884 and 1890, who was later transferred to Tbilisi. Both objects were in fact known in the nineteenth century from photographs sent by G. I. Radde, the director of the museum at Tbilisi, to Moscow, where they were published as stelae from the 'tombs of Palmyra' in 1886. The stelae were also of limestone that was not of local central Asian origin. The first reservation expressed about Merv being the provenance for the Palmyrene stelae was by Klaus Parlasca in 1969, who observed, shortly after the publication by the Russian archaeologists, that the 'the area of distribution of purely Palmyrene sculptures was limited to the

³¹⁶ Masson (1967: 239–47).

³¹⁷ C 3548 = PAT 294; 3994 and 3949 = Inv. III, 28, 29.

³¹⁸ The reading of the five lines is uncertain: see Teixidor (1970: 381, no. 98).

Syrian orbit'.³¹⁹ A decade later, it was Paul Bernard who provided an alternative hypothesis, far more compelling and reasonable than that proposed by the Russian archaeologists.³²⁰ With penetrating insight and critical acumen, he exposed a number of the oddities of the Merv discovery as being illogical or erroneous. First, it was clear the stelae were not contemporaneous: the style and palaeography of the girl Ba'it was of the first century, and therefore her grandfather could not be the merchant Taymarsu of AD 193. In addition, the other stele of Mazzabana is more likely to be dated to the third century AD. Secondly, consultation with André Caquot and Jean Starcky revealed no evidence of a duplicate stele of the girl from Palmyra, much less one dated to AD 193, and nothing has emerged subsequently to refute their opinion. Finally, it seemed more likely that the Russian general-administrator Alikhanoff had simply transported the statues from Syria to the oasis of Merv in 1886 by the train that connected Tbilisi to Merv. The movement of Palmyrene antiquities was not unusual at the time: Bernard pointed out that the great Palmyrene Tariff inscription was discovered in 1881 by the Russian general Abamelik-Lazarov, and now resides in Leningrad. With one stroke of his pen, Bernard removed all the evidence for a Palmyrene overland caravan road connecting Syria and Central Asia. In fact, there was no need for Palmyrenes to traverse the Iranian plateaus or proceed further east than the Parthian stations at Seleucia and Baylon, as reflected in their inscriptions.

Nor should this Palmyrene fiasco be used to discount the possible important commercial role that the Merv oasis may have played in the transportation of silk and other Far Eastern goods to the West. The scientific investigation of the famous oasis is just beginning, and its potential in this regard still unrealized. A preliminary regional survey of the oasis recorded 150 monuments, almost half of which had been previously unrecorded.³²¹ A spurt of new settlements in the Parthian period in the northern part of the oasis has been recorded, offering more potential illumination for the period.³²² The numismatic evidence emerging from this renewed investigation is also contributing to our knowledge of the strategic importance of Merv on the northern caravan route in the Parthian period. The new excavations and survey of Merv have produced about 1,500 coins, and another 1,800 have been found in southern Turkmenistan. The earliest coins are Seleucid, dating from about 293–261 BC, followed by an unbroken sequence of Greco-Bactrian coins (250–145 BC), before Parthian issues appear in 138 BC and continue into

³¹⁹ Parlasca (1969–70: 183), and reiterated in (1988: 242) and (1992: 258), without further detail.

³²⁰ Bernard (1979: 135–9).

³²¹ Bader, Gaibov, and Koshelenko (1993–4: 52). For the location of Merv, see Talbert (2000: 1361, map 98, C1).

³²² Bader et al. (1996: 57).

the third century AD, succeeded by Sasanian issues.³²³ The first Roman issues appear only in the mid-fourth century, and only fourteen bronze Late Roman and Byzantine issues are known.³²⁴ As a result, there is no reason to discount the possible role Merv may have played as an important station on the caravan route. At present, we can only hope future excavations will provide us with more information of the settlement in the Hellenistic and Roman periods.

CONCLUSION

The results of this investigation of the overland trade route between China and the West can now be summarized. During the reign of Emperor Wudi (140–87 BC), diplomatic missions to the Western Regions exposed the Chinese to the wealth of the Central Asia states. Substantial gifts to the Sogdians, Scythians, Bactrians, Indians, and Parthians precipitated commercial exchanges, including large quantities of Han silk as gifts. As the *SJ* and *HS* indicate, it also transformed the Chinese envoys into profiteers and attracted ‘greedy’ merchants from the Western Regions. The *HHS* records another wave of diplomatic activity resulting from Gan Ying’s embassy to the Persian Gulf in AD 97, during the protectorship of the Western Regions by Ban Ch’ao (AD 91–101). The embassies of these Han initiatives included diplomatic relations between India and China, and the gift exchanges must have included Chinese silk. The evidence of traders along the overland route leading west is minimal, but the new Xuanquan documents make it clear that Sogdians were involved in international commerce as early as the first century BC, and the Taklamakan documents, Karakoram graffiti from North India, and the ‘Begram’ Treasure make it clear that there was significant movement of peoples and goods along segments of the ‘Silk Route’ during the early Roman imperial era.

As this survey of the evidence for the so-called Silk Road suggests, the institutions and mechanisms that promoted and sustained the supply and transportation of silk from China to the Mediterranean world continue to elude our grasp. Significant gaps and lacunae exist in our evidence of a ‘Silk Route’, but sporadic and desultory hints and glimpses provide at least some details. From a diachronic perspective, most of this evidence is late, dating to after the Han Dynasty’s collapse in the third century AD and later, but there are now significant clues that suggest this trade was operating as early as the first century BC. Although the Han records indicate that these enterprises were associated with official diplomatic envoys, not mercantile adventurers, there is

³²³ Smirnova (2007). Parthian bronze issues number in the hundreds, with Sasanid issues representing over 1,000 of the known specimens.

³²⁴ Hobbs (1995: 97).

reason to suspect mercantile activity on other levels. It is evident that the 'profit motive' existed at the time among Chinese officials, not just the foreign 'envoys.' Precisely how the silk made its way step-by-step into the Roman Empire remains unknown, but it must have been the product of a sequence of exchanges involving middlemen such as the Sogdians, Indians, and Parthians. Any relations between Han China and Rome were indirect, the expedition of Maes in c. AD 80–100 constituting a notable exception. During the Augustan era, such lengthy ventures were unnecessary, as the Palmyrenes and others could bargain and barter for silk and other exotica in the emporia within the Parthian Empire on the western frontier. Although the evidence for the transport of silk across the Iranian plateau is minimal, the routes and stations leading to the Parthian emporia in southern Mesopotamia are well known. As relations between Rome and Parthia deteriorated in the second century AD, seaborne trade increased and Palmyra and Rome became involved primarily in long-distance commerce with the ports of India under Kushan control, but there is evidence for silk entering the Roman Empire by overland trade in the preceding era and probably later. There is no need to call for a 'paradigm shift', in which maritime trade is considered the sole means of commerce with the Far East. In essence, enough clues exist to suggest that the overland continental trade route was an important vital artery for trade in the early Roman imperial era.

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ABBREVIATIONS

- | | |
|--------|---|
| BS III | C. Dunant, <i>Le Sanctuaire de Baalshamîn à Palmyre</i> , iii. <i>Les Inscriptions</i> (Bibliotheca Helvetica Romana 10.3; Rome, 1971) |
| BS VI | R. Fellmann and C. Dunant (1975), <i>Le Sanctuaire de Baalshamîn à Palmyre</i> , vi. <i>Kleinfunde. Objets divers</i> (Bibliotheca Helvetica Romana 10.6; Rome, 1975) |

- CD É. Chavannes, *Les Documents chinois découverts par Aurel Stein dans les sables du Turkestan oriental* (Oxford, 1913)
- CIS *Corpus Inscriptionum Semiticarum, ab Academia Inscriptionum et Litterarum Humaniorum conditum atque digestum* (Paris, 1881–)
- EI *Encyclopaedia Iranica*
- HS *Han shu*, trans. Hulsewé and Loewe (1979)
- HHS *Hou Han shu*, trans. Hill (2009)
- IGLS *Les Inscriptions grecques et latines de la Syrie* (Paris)
- Inv. *Inventaire des inscriptions de Palmyre*
- JMBRAS *Journal of the Malaysian Branch of the Royal Asiatic Society*
- KhI A. M. Boyer, E. J. Rapson, E. Senart, and P. S. Noble, *Kharoṣṭhī Inscriptions Discovered by Sir Aurel Stein in Chinese Turkestan* (Oxford, 1920–9)
- MTB *Memoirs of the Research Department of the Toyo Bunko* (The Oriental Library)
- PAT D. R. Hillers and E. Cussini, *Palmyrene Aramaic Texts* (Baltimore, 1996)
- PIY Yon, J.-B. (2012). *Inscriptions grecques et latines de la Syrie*, XVII/1: *Palmyre* (BAH 195). Beyrouth
- PME *Periplus Maris Erythraei*
- SJ *Shiji* 123, trans. Watson (1993) and Hirth (1917)

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Egypt and Eastern Commerce during the Second Century AD and Later

Roberta Tomber

Historically it is the Augustan period, and the remainder of the first century AD, that has been considered the high point of Indo-Roman trade. Archaeologically this has been supported by the abundance of first-century coinage in India that numbers in the thousands of coins, and to a lesser extent by Roman amphorae; furthermore, the most detailed and informative documents such as Strabo's *Geography*, Pliny's *Natural History*, and the anonymous shipper's guide, the *Periplus Maris Erythraei*, all belong to the first century. The subsequent downturn has been attributed to a variety of causes including unrest in the Eastern Desert from the Blemmyes, the third-century crisis, and to a lesser extent the Antonine Plague.¹

Recent evidence, however—especially from the Eastern Desert of Egypt—indicates that this trade remained important during the second century AD. This chapter will review some of the more significant evidence, especially archaeological, for second- and third-century activity at the port sites and more broadly throughout the Eastern Desert of Egypt (Fig. 16.1), particularly after Trajan. In addition to the ports, this review includes select quarry sites exploited for decorative stone for Imperial projects in Rome and beyond; their relevance is that they provide markers for the continued infrastructural investment in transport routes within and across the Eastern Desert on which the Indo-Roman trade intersected with the routes between the Nile and the Red Sea. This chapter also briefly surveys the corresponding evidence from Mesopotamia (Parthian and Sasanian), Palmyra, and India itself in order to examine the interconnections between these regions and the Roman Empire and the possible effects on long-distance trade with the East.²

¹ Young (2001: 82–6); McLaughlin (2010: 59–60); most recently Cobb (2015: 365).

² The Farasan Islands are not included here, but they have been recently discussed by Cobb (2015: 370); Nappo (2015: 65–8); Wilson (2015: 22).

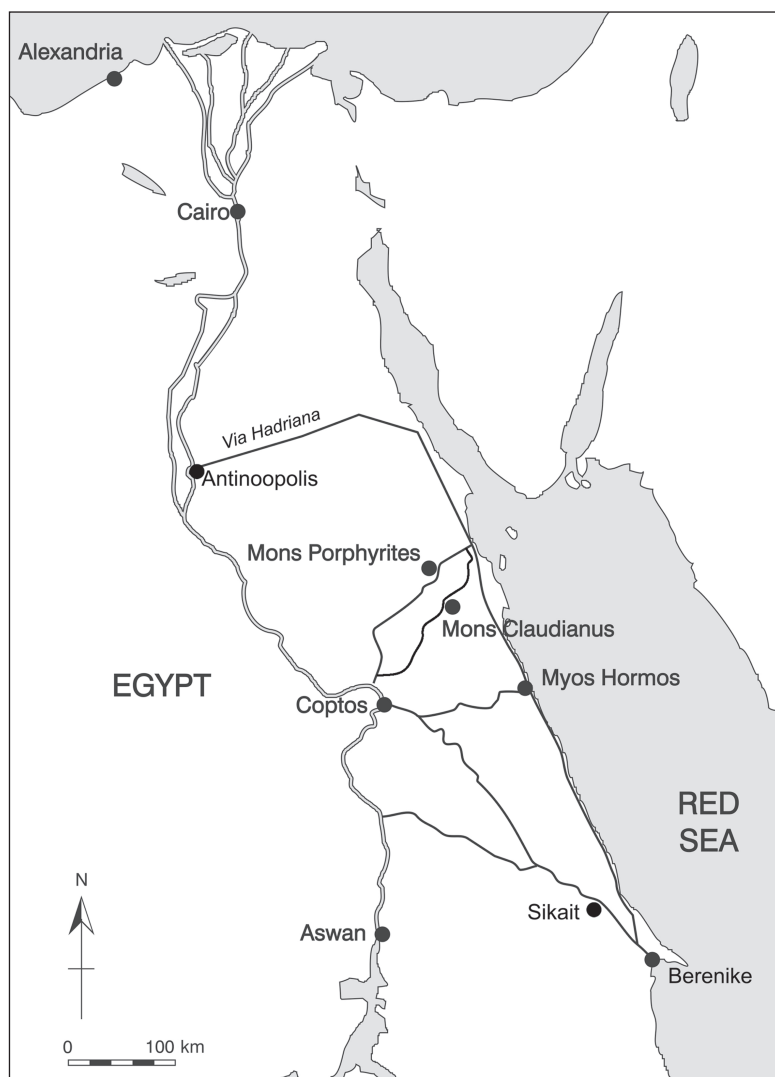


Fig. 16.1. Location map of Red Sea sites and roads
(A. Simpson, based on a map by P. Copeland)

EASTERN DESERT QUARRY SITES

Mons Claudianus

Mons Claudianus was the source of grey granodiorite. Known as *granito del foro* because of its extensive use in the Forum of Rome, it was essentially restricted to Imperial building projects of Rome and its environs. Major

projects during the second century comprise numerous monuments at Rome, including the Hadrianic rebuilding of the Agrippan Pantheon (now thought to have been initiated during the Trajanic period),³ and Hadrian's villa at Tivoli. Of interest is the lack of identifiable building projects dated to the 140s and 150s, when the site was still actively exploited.⁴ Between 1987 and 1993 I was part of the international team headed by Professor J. Bingen under the aegis of the Institut Français d'Archéologie Oriental. My role there as at many of the other sites outlined here was as pottery specialist.

The settlement site has a robust archaeological sequence,⁵ from the Domitianic period into the early third century, particularly reflecting the major building programmes of Trajan and Hadrian. Earlier material, of the Neronian period, was identified from the nearby site known as the Hydreuma, which appears to have been the first focus for the settlement at Claudianus. In terms of its structures, the gate at the main site was marked by an inscription to Domitian of AD 85/6. The fortified settlement reached its maximum during the Trajanic–early Hadrianic periods, and the occupation flourished into the Antonine period, although the documentary evidence that comprises *ostraca*, coins, and inscriptions has a gap between AD 119 and c.135. The main settlement housed the population and particularly in the post-Antonine period was used for dumping rubbish; external structures were diverse, of which the temple to Serapis included a Hadrianic inscription (AD 118). Slightly later in the second century, during the early Antonine period, a complex consisting of a granary and animal lines (for the accommodation of animals) was constructed. The *granito del foro* was obtained from 130 sites in the vicinity of the settlement,⁶ and the presence of partially worked and broken columns, fountains, and tubs in the quarries shows the hazards involved in the working and transportation of these architectural items.

Approximately 9,000 *ostraca* were collected from the site as a whole, and their gradual publication is providing a detailed picture of life in the settlement and quarries. *Ostraca* were represented from all periods of the sequence, but particularly during the Trajanic, late Hadrianic, and Antonine periods, through to the middle of the reign of Antoninus Pius (AD 136/7–154). Thereafter only a small number of *ostraca* come from the reigns of Commodus, Septimius Severus, and Severus Alexander, indicating a decline in occupation. While the different classes of documentary evidence—*ostraca*, coins, and inscriptions—do not always correspond with each other, they nevertheless support the general troughs and peaks of activity on site.

³ For the revised dating of the Pantheon, see Hetland (2007); Wilson Jones (2013).

⁴ For a summary of building projects using Claudianus stone, see Maxfield and Peacock (2001a: 429–32).

⁵ Maxfield and Peacock (2001a: 423–55).

⁶ Peacock (1997: 177).

Perhaps the richest feature was a *sebakh* comprising a range of finds, notably organic material (textiles, basketry, and bones in fresh condition). In addition to the large mass of pottery, and 45 coins, c.4,000 *ostraca* were excavated from the area, of which 129 carried specific dates.⁷ Although the dated *ostraca* from this deposit are primarily Trajanic, the final reworking and abandonment are dated by two early Antonine *ostraca* and a number of others that by comparison are considered late Hadrianic or Antonine. Among the more substantial groups of *ostraca* overall from Claudianus are over 1,200 *entolai* (orders), which date to AD 136–46 and record how the workers spent their wages.⁸

Mons Porphyrites

Mons Porphyrites was the sole source of Imperial porphyry. The discovery of the site by the Romans is recorded by an inscription from a Paneion, dated to 23 July AD 18,⁹ found by the University of Southampton and Exeter teams during their five-year exploration of the environs between 1994 and 1998. After their discovery during the Tiberian period, exploitation of the quarries continued into the late fourth or early fifth century. Early Roman deposits indicate a high level of activity from the early second century onwards. A large quantity of ceramics belongs to the second half of the second or the first half of the third century. The largest single archive of *ostraca*, a group of bread receipts, has associated pottery belonging to this broad period, but palaeographically the receipts date to late in the first half of the third century,¹⁰ which may suggest that the majority of the pottery is of the third rather than second century.

While, like the Mons Claudianus stone, porphyry is associated with Imperial projects in Rome (including the Forum and possibly the original Hadrianic Temple of Venus), it is also found throughout the Empire and has an extensive history of reuse during the Byzantine and medieval periods.¹¹ As at Mons Claudianus, there is a shortage of building projects that can be directly tied to the later Antonine period, with rare documentary evidence in support of the later Antonine and third century.¹² Of the twenty-two inscriptions known from Mons Porphyrites, two are Trajanic in date, three are second-/third-century, and two are Hadrianic, the last comprising a temple dedication to Isis Myrionomos of AD 137–8, and another from the Serapis

⁷ Maxfield and Bingen (2001: 112–25).

⁸ Cuvigny (1996; 2000).

⁹ Van Rengen (2001: 60–2).

¹⁰ Van Rengen (2007: 409–11).

¹¹ Maxfield and Peacock (2001b: 320); Peacock and Maxfield (2007: 424–7).

¹² Peacock and Maxfield (2007: 420–1).

temple of AD 117–19.¹³ A summary of the c.700 *ostraca* indicates a number of *entolai*, which would date similarly to those from Mons Claudianus.¹⁴

Here too the site was organized around a fortified settlement. A full sequence was not excavated from the main structure, owing to difficulties resulting from extensive rock tumble. However, deposits from the entire chronological span were collected from the surface or excavated from the environs.¹⁵ This included not only the fortlet but numerous outbuildings and six quarry complexes, each comprising between two and twelve quarry sites. Unlike at Mons Claudianus, nearly every main quarry area was paired with a living complex for workers. Only a small amount of precisely dated material was available, and the pottery—much of which was mid-second-century or later—was important for phasing the site.

Mons Smaragdus

In the area of Mons Smaragdus a complex of at least nine settlements exploited beryl/emerald for jewellery. Noted by ancient authors, it was the only source for these gems in the Roman world;¹⁶ beyond the Roman world, India also provided a green beryl.

Of the sites in the Mons Smaragdus complex, that of the mining settlement at Sikait is the most thoroughly known, as the subject of survey and excavation by the University of Delaware between 2002 and 2003.¹⁷ At Sikait between 150 and 200 buildings—mostly of stone, but also rock-cut—cover an area measuring c.560 × 270 m. Many of the stone buildings were originally two-storey and are well preserved to above their windows. Rock-cut buildings include two temples with datable epigraphy. The first has an inscription to Gallienus (AD 260–8) and the second a *dipinto* that is not earlier than the third quarter of the second century.¹⁸ Excavation has uncovered a Roman sequence from at least the first century AD through the sixth century, but most of the deposits are from the fourth through sixth centuries. Nevertheless, numerous Fayum portraits of the second century clearly show the wearing of emeralds,¹⁹ and, while some of these may have come from further east, it is likely that others were from the Egyptian source.

Another well-preserved site in the Mons Smaragdus complex, for gem-processing, is Kab Marfu'a. Spanning the period from roughly the second through the fifth centuries AD, the pottery assemblage is particularly rich in

¹³ Maxfield (2001b: 41); Peacock (2001: 36–7); Van Rengen (2007: 398).

¹⁴ Van Rengen (2007: 407–11).

¹⁵ Peacock and Maxfield (2007: 414–31).

¹⁶ Foster et al. (2007: 305–6) for bibliography.

¹⁷ Foster et al. (2007); Sidebotham et al. (2004).

¹⁸ Cuvigny (2007: 342–3).

¹⁹ e.g. Walker and Bierbrier (1997: nos 33–4).

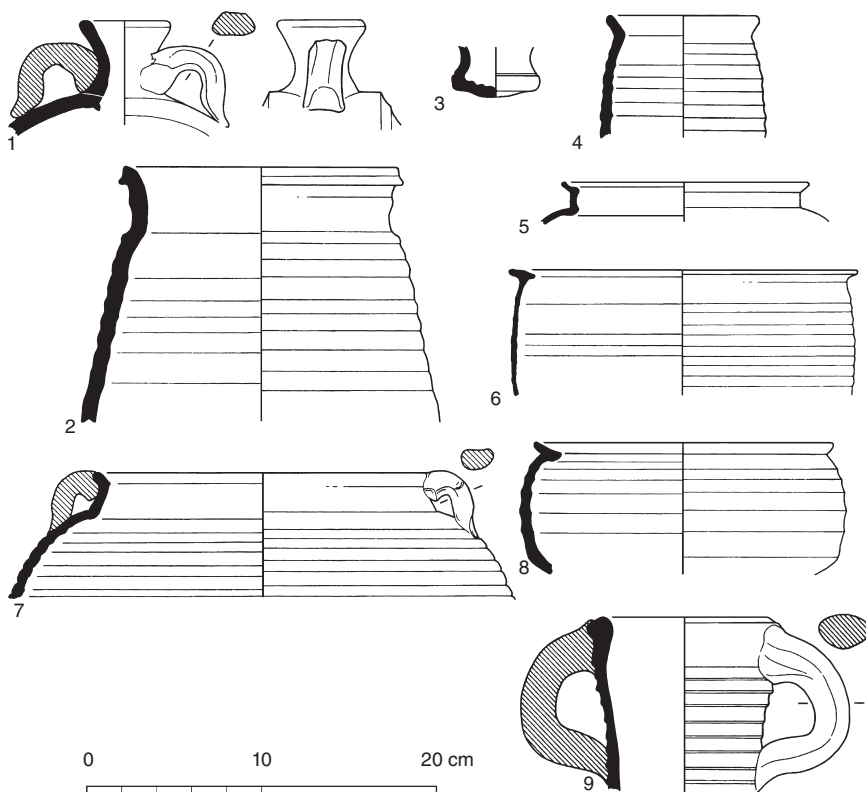


Fig. 16.2. Pottery of the second half of the second to the mid-third century AD: Costrel (1); *Sakkia* pots and jars (2–4); Cooking wares (5–8); Egyptian amphora (9) (modified from Tomber 2001: fig. 6.1)

North African amphorae, also found at Myos Hormos, broadly dated to the third and fourth centuries.²⁰

Second-century pottery from the Eastern Desert

It is particularly from deposits at Mons Claudianus, dated by the *ostraca*, that it has been possible to construct a dated typology that distinguishes Egyptian coarse ware pottery forms of the early second century from those of the Hadrianic period and the remainder of the second century (Fig. 16.2).²¹ In

²⁰ Sidebotham et al. (2005); a full account of the site will appear in Sidebotham, Gates-Foster, and Rivard (in preparation) and the pottery in Tomber (in preparation).

²¹ Tomber (2006). For brevity, the period from the Hadrianic onwards is referred to as the second half of the second century.

turn these assemblages have enabled the identification of similarly dated deposits elsewhere in the Eastern Desert when absolute dates are lacking, and they have therefore been instrumental in dating ceramic assemblages from the port sites. Further distinctions within the period into the third century are more difficult to isolate, although a few forms that dominate at Mons Porphyrites²² may represent changes during the third century; at Myos Hormos, Tunisian Dressel 30 amphorae are similarly markers for the third century.²³ Despite the lack of precision, these assemblages nevertheless provide a means by which to identify activity during a period that has been less discussed within the context of Indo-Roman trade.

THE RED SEA AND EASTERN TRADE

The economic exploitation of India via the Red Sea was systematized after the annexation of Egypt as a province by Augustus in 30 BC. Through these ports Egypt became the funnel for goods from the East, following a route from the Red Sea, to Coptos on the Nile, and eventually Alexandria.

Myos Hormos and Berenike

Within the Roman period there is archaeological evidence for the site at Myos Hormos from the late first century BC until at least the mid-third century AD, when the silting of its harbour appears to have led to its abandonment. While the University of Chicago excavations between 1978 and 1982 focused on structural features,²⁴ examination of the harbour was a priority for the 1999–2003 excavations conducted by the University of Southampton.²⁵ A large deposit formed of reused amphorae was the main built structure associated with the harbour. The amphorae, in places backed by a sea-defence wall, were used to consolidate the muddy area surrounding the harbour and to form a quay.²⁶ The reuse of amphorae is seen elsewhere on site, including a second-century oven constructed from amphora spikes,²⁷ and these features, together with the lack of monumental architecture, emphasize the minimal investment put into the infrastructure at the port. The lack of monumentality forms a contrast to that seen at the Eastern Desert quarries and presents an interesting anomaly in terms of the overall trend elsewhere in the Empire towards investment in roads and port facilities during this period.

²² For pottery of this date, see Tomber (2007a).

²³ Tomber (2009).

²⁴ Whitcomb and Johnson (1979; 1982).

²⁵ Peacock and Blue (2006; 2011).

²⁶ Peacock and Blue (2006: 175–6).

²⁷ Thomas and Masser (2006: 132).

The southerly port of Berenike has a longer period of occupation, extending from the mid-third century BC and ending before the mid-sixth century AD.²⁸ In 1998 a segment of a first-century—possibly Augustan—wall from a pier or wharf was excavated at Berenike,²⁹ while since then ongoing excavations focusing on the waterfront area have provided more details on the development of the harbour.³⁰ In particular, the lagoon and adjacent areas on the south-western edge of the site seems to have been abandoned around the mid-second century. From what we know at the moment, Berenike's harbour, like that at Myos Hormos, as a transit port, lacked the monumental structures that exist at many Mediterranean ports.

The occupation sequences of Berenike and Myos Hormos appear to be interrelated, with both flourishing from the late first century BC through the first century AD. On the basis of the pottery, Myos Hormos was more active during all of the second century and into the first half of the third than Berenike. Durand has pointed out the greater number of Nabataean inscriptions in the region of Myos Hormos than Berenike and has suggested that logistically Myos Hormos would have been the obvious partner for continued trade from South Arabia after the annexation of Nabataea in AD 106.³¹ This is an attractive explanation for the dominance of Myos Hormos, flawed only by the similarly small quantities of Nabataean pottery at both Egyptian sites. Recently Cobb has tabulated the features and finds from Myos Hormos in order to argue that the greater intensity of occupation occurred during the first rather than the second century.³² His results are interesting and merit more detailed quantitative examination of the finds within the individual features. Here the main focus is not to debate the relative intensity of trade between the first and second centuries, but to draw attention to the importance of second-century trade.

Although there is more preserved architecture from Berenike than Myos Hormos—much belonging to a building technique combining ashlar and coral, and termed by modern scholars *opus Berenikeum*³³—the majority of the structures belong to the Late Roman period. In contrast to the lack of monumentality at these sites, the artefact and faunal assemblages from both are particularly rich, displaying a vast array of Red Sea, Mediterranean, and Eastern goods that attest to the ports' flourishing activity. The pottery assemblages boast a remarkable range of Augustan and first-century imports from throughout the Mediterranean, comprising both amphorae and fine wares. Amphorae for wine are particularly common and come from the western Mediterranean and the Aegean, while the fine wares include thin-walled

²⁸ Sidebotham and Wendrich (1998; 2001–2).

²⁹ Sidebotham and Wendrich (1998: 87–8); Sidebotham (2000: 74).

³⁰ Sidebotham and Zych (2010: 19–21; 2012). ³¹ Durand (2012).

³² Cobb (2015: 403–7). ³³ Sidebotham (2000: 108).

wares, a range of sigillata (Eastern Sigillata A and B and Italian Sigillata) as well as more usual types such as West Asian glazed wares. From the second century there is more reliance on pottery from Egyptian sources, a trend typical of provincial pottery supply. Both sites are equally rich in Eastern goods. *Piper nigrum* or black pepper from south-west India (modern Kerala) was one of a number of Indian finds identified from the Red Sea ports, and among the most significant items that helped fuel the demand for trade. The largest single cache comes from Berenike, where 7.5 kilos of black pepper were found in an Indian storage jar, associated *in situ* with the early Roman Serapis temple.³⁴

EASTERN DESERT TRANSPORT ROUTES

Since the mid-1990s, extensive survey in the Eastern Desert has done much to locate the ancient road systems and their adjacent sites. Among these routes is the Via Nova Hadriana (Fig. 16.1) that was traced by a University of Delaware survey team between 1996 and 2000.³⁵ Although named after Hadrian, in places it follows more ancient routes, and in fact some scholars have raised the possibility that its systematic origins may lie with Trajan. An inscription of AD 137 found at Antinoopolis reads:

Emperor Caesar, son of the divine Trajan Parthicus, grandson of the divine Nerva, Trajan Hadrian Augustus, Pontifex Maximus, holding tribunician power for the twenty-first time, Imperator for the second time, consul for the third time, Father of his Country, had built a new Via Hadriana from Berenike to Antinoopolis, that traversed safe and level areas along the Red Sea and furnished it at intervals with abundant *hydreumata* and stations and forts.³⁶

This suggests that, rather than starting at Antinoopolis, the construction worked northwards from Berenike, or alternatively the road-building teams may have started at both Antinoopolis and Berenike.

The Eastern Desert,³⁷ including the ports, was under control of an Imperial official, the *praefectus Berenicidis* (or *praefectus Montis Berenicidis* or *praefectus praesidiorum et montis Berenicidis*), until at least c. AD 132, when the nome

³⁴ Cappers (2006: 114).

³⁵ Sidebotham et al. (in preparation); see also Sidebotham and Zitterkopf (1997; 1998); Sidebotham, Zitterkopf, and Helms (2000).

³⁶ Sidebotham et al. (in preparation: trans. R. Bagnall and S. Sidebotham), also citing Bernard (1977: 217, no. 80).

³⁷ Strictly speaking, the northernmost limit of this area is Wadi Semna, thus excluding Mons Claudianus and Porphyrites, but Maxfield (2001a: 148) implies that they may have been included.

of Berenike was created.³⁸ It is within this change from military to civilian administration that the Via Nova Hadriana should be placed. When it is interpreted in terms of the overall road system of the Eastern Desert, Sidebotham et al.³⁹ conclude that it served, not a commercial function, but rather an administrative one as a *cursus publicus* and *cursus clabularis* that linked the Red Sea ports by land and promoted north–south communication.

A number of other road networks intersected the Red Sea and the Nile Valley, and those of most relevance to this discussion are routes leading between Coptos and Myos Hormos and Coptos and Berenike, both of which were active from the Ptolemaic period. These two roads, the adjacent *praesidia* and other structures along the route, have been the subject of in-depth survey and excavation since the late 1980s.⁴⁰ Occupation is evident on both routes during the first century. If we focus on the Myos Hormos road, seven stopping places can be attributed to the Trajanic period and eight are active by the third quarter of the second century, indicating the continued use of the road during the second century.⁴¹ Identification of sites belonging to the third century is more problematic. Brun mentions some potential early third-century finds at Maximianon, but only Quseir al-Banat is securely assigned to this period, and it may have stronger ties to the Berenike route. Certainly more of the *ostraca* recovered from the road belong to the Trajanic and early Hadrianic period.⁴² On the Berenike–Coptos road, here, too, stations of the second century are represented.⁴³ Broadly speaking, the Myos Hormos road was abandoned sometime in the early Roman period, with the Berenike one continuing through the Late Roman period, corresponding to the trajectories of the related ports. Just how closely the abandonment of the Myos Hormos road corresponds with the abandonment of its terminus is unclear, partly as a consequence of the wider problem of isolating Egyptian pottery of the early third century.

The quarries had their own east–west road systems. Fig. 16.1 shows that the quarries of Mons Claudianus and Mons Porphyrites were on separate road networks from the ports at Myos Hormos and Berenike, and this is reflected by an absence of stone from these sites on the Red Sea. While both these major quarries and the ports contributed to the general economic activity of the region—prosperity resulting from long-distance trade that would in turn have

³⁸ The role of this prefect and more generally the organization of the Eastern Desert are clearly outlined by Maxfield (2001a: esp. 147–50), where she also cites an alternative viewpoint that continues the prefect of Berenike into the third century.

³⁹ Sidebotham et al. (in preparation).

⁴⁰ For the Myos Hormos road: Zitterkopf and Sidebotham (1989); Cuvigny (2003) papers within the volume, including Brun (2003); for a summary of both roads: Sidebotham (2011: 129–35, table 8-1, fig. 8-1); Wilson (2015: 14–21).

⁴¹ Brun (2003: 198–202); Maxfield (2005: 736).

⁴² Brun (2003: 199–202).

⁴³ Sidebotham (2011: 133–4).

affected available supply at the quarry sites—they remained separate activities, converging at Coptos, and it was from here that the diverse range of Egyptian goods, including vessels of Imperial porphyry, found at Begram in Afghanistan would have been amassed.⁴⁴ The situation differed for sites such as Sikait, which, since it was located on the road between Berenike and Coptos, was more integrated into the long-distance routes, or at least this is suggested by the presence there of ‘Indo-Pacific’ beads that were common trade items with India/Sri Lanka.⁴⁵ Elsewhere in the Eastern Desert, finds of Indian origin are common at ports on the Red Sea and to a lesser extent Coptos, where Indian pottery has been recorded.⁴⁶ More recent finds occur at sites on the Berenike–Coptos road, still exclusively associated with trade and traders. If we move northwards along the route, the finds include: a single sherd of Indian pottery from Vetus Hydreuma;⁴⁷ an Indian (Chera) coin from Dios;⁴⁸ and a complete Indian cooking pot from Didymoi.⁴⁹

No discussion of the Eastern Desert during the second century is complete without a mention of the Nile–Red Sea canal that ran from Babylon (southern Cairo) to Clysma (vicinity of Suez). This was known as Trajan’s canal, despite its initial foundation in pre-Roman times, the moniker indicating it was dredged by Trajan and reflecting the level of Trajanic interest in the region.⁵⁰ While the canal may have been used to transport heavier freight items to the Red Sea, it has never been considered as a major thoroughfare for trade.⁵¹ Cooper’s comprehensive study of the Nile, including the Nile–Red Sea canal reinforces this argument, for he has demonstrated that the canal would have been navigable only for the short season of Nile flooding.⁵²

The economic organization behind the exploitation of mineral resources and trade needs to be considered separately. Stone from Mons Claudianus and Mons Porphyrites was controlled by the emperor particularly for his building projects; the emperor benefited from Indo-Roman trade, but an equal level of involvement appears to have been lacking. Military personnel played a continuing, but not exclusive, role in channelling trade goods,⁵³ but the most direct imperial benefit came from the quarter-tax imports from the East (the *tetarte*) levied at a few key locations: Alexandria, Leuke Kome, and possibly Antioch. Yet imperial interest could be exercised by less formal means. Bowman summarizes ways in which slaves and freedmen of the imperial household were directly involved in commerce in different capacities, including

⁴⁴ Mehendale (2011: figs 103–4 for porphyry; 168–85; 197–209 for other potential objects).

⁴⁵ Sidebotham et al. (2004: 14, pl. D). ⁴⁶ Elaigne (1999). ⁴⁷ Tomber (2008: 75).

⁴⁸ Cuvigny, pers. comm.: the Chera coin has been identified by O. Boppearachchi.

⁴⁹ J.-P. Brun, pers. comm.

⁵⁰ Nappo (2015) argues that the Trajanic canal was one of a number of indicators representing Trajan’s interest in the region.

⁵¹ Sidebotham (1992: 16). ⁵² Cooper (2014: 95–9, 118).

⁵³ Sidebotham (2011: 252–3).

trade with the East. As he questions, was the involvement of these persons directed from the top, and was it private or public?⁵⁴ More recently, Wilson has convincingly argued that maintenance of the eastern desert roads, through state involvement, was driven by the revenue obtained from the *tetarte*.⁵⁵

INDIA AND ITS PORTS

Second-century documents describing the trade with India are less extensive than those for the first century, but, according to Sidebotham, those that exist, including Dionysius Periegetes, Juvenal, and Lucian, are well informed and non-prejudicial about India.⁵⁶ An important text for this period is the mid second-century Muziris papyrus—part of an agreement for a maritime loan relating to a cargo from Muziris, located on the south-western coast of India in modern Kerala (Fig. 16.3). The document not only details the arrangements for transport across the Eastern Desert on the return journey to Alexandria, but is explicit about the value of the shipload, which would have been around



Fig. 16.3. The Indian Ocean showing sites mentioned in the text
(A. Simpson)

⁵⁴ Bowman (2010: 106 *et passim*).

⁵⁵ Wilson (2015).

⁵⁶ Sidebotham (1986: 142).

seven million *sestertii*.⁵⁷ It therefore underlines the value of trade with the East during the second century.

Until 2003 Muziris had been tentatively equated with a site on the northern banks of the Periyar River at Kodungallur,⁵⁸ but archaeological evidence for the Early Historic period (equivalent with the Roman era) was lacking at the site. The identification of two sherds of Campanian amphorae found in 2003 at Pattanam, Kerala, contributed to a hypothesis that it could have been part of the Muziris site. Its situation south of the Periyar River, rather than north as indicated by the documents, was resolved by identifying that the Periyar had migrated north since Roman times.⁵⁹ Since then, large-scale exploration of the site during nine seasons of excavation by the Kerala Council for Historical Research has revealed a wharf area, a wooden log boat, and large quantities of artefacts imported from the West.⁶⁰ Pattanam now boasts the largest quantity of Roman amphorae in India (over 5,000 sherds), and, with other categories of evidence, has revealed extensive occupation that may well represent the remains of Muziris. Excluding medieval occupation, the site has a sequence possibly from as early as 500 BC to around the fifth century AD, although, generally speaking, evidence from Roman material for most of the third and fourth centuries is absent. The majority of the Roman amphorae and finewares date to the late first BC/early first century AD, but there are some types that extend into at least the second and early third centuries, particularly the Egyptian Dressel 2–4 double-barrel handled container for wine.

Coins are the most widespread and prolific Roman artefact type in India and have been the subject of interest and debate since they were first identified in the late eighteenth century. Fig. 16.4 was compiled by Turner⁶¹ and is annotated here. Turner's work emphasized Early Roman precious metal hoards, which comprise *c.* 75 findspots with more than 6,000 *denarii* and 800 *aurei* of the first through third centuries AD. Over 70 per cent of the silver and 90 per cent of the gold occur as hoards in the south of India, especially the south-west.⁶² Most are Julio-Claudian in date, although rare Republican coins are present, sometimes found with later issues up to Hadrian.⁶³

The interpretation of these coins has been controversial, whether they were used as money or bullion and whether they travelled at the time of their face date or at certain set periods after coinage reforms.⁶⁴ Interpretation will certainly vary according to context, particularly their location in India and the type of metal. For the later coins, from the second century onwards, it is possible that they arrived while still current in the Empire.⁶⁵

⁵⁷ Rathbone (2001).

⁵⁸ Gurukkal and Whittaker (2001).

⁵⁹ Shajan et al. (2004).

⁶⁰ Cherian, Selvakumar, and Shajan (2007); e.g. Cherian (2015).

⁶¹ Turner (1989).

⁶² Meyer (2007: 61).

⁶³ MacDowall (1998: 89).

⁶⁴ See Nappo, Chapter 17, this volume.

⁶⁵ Burnett (1998: 185).

Fig. 16.4 distinguishes the second-century coins, including those from Trajan to Commodus but not Septimius Severus. There is a slight bias in their distribution towards Andhra Pradesh on the east coast,⁶⁶ and this would increase by another two sites if coins of Septimius Severus were included. It must be stressed, though, that the sample is less than fifty coins in comparison with the thousands of Julio-Claudian ones. However, as discussed by Nappo,⁶⁷ computations based on the quantity of coins fail to recognize the greater value of *aurei* over *denarii*. Importantly, when this is taken into account, second-century coins (particularly those of Antoninus Pius) appear nearly equal in value to those of the first century.

Another document of this period is Claudius Ptolemy's *Geography*. Ptolemy's gazetteer also suggests the development of the east coast of India in terms of classical knowledge during the second century—with more sites listed than during the first century.⁶⁸ A number of sites on the Coromandel (south-east) coast of India reflect direct or indirect contact with the Roman world through coins or pottery. The best known of these, because of both Wheeler's excavations there and the large quantity of Roman amphorae, is Arikamedu (ancient Podukê).⁶⁹ It would be gratifying to see a second-century development at Arikamedu, but unfortunately there is little evidence in support of this. While there are some amphorae that continue into the second century, the majority date to the first century BC/AD.

Prior to the findings from Pattanam, Arikamedu had been the site in India with the largest quantity of Roman finds, especially amphorae. This concentration has been difficult to reconcile with its relative unimportance in documents. Logistically Arikamedu may have been challenging to reach by sea, around the Cape Comorin, and an overland route from the West coast would also be arduous. Why then was it so rich in Roman finds? This anomaly may be best explained if Arikamedu is seen as a contact point for exchange between local groups and the Roman world to points further east, Sri Lanka and even China. The importance of the east coast of India for communications with China is underlined by Chinese documents that record embassies from Tam-luk (on the north-east coast) to China in the third century.⁷⁰

Young⁷¹ has recently summarized the evidence for contacts between the Roman world and China. Ptolemy's *Gazetteer*, which described South East Asia, and Chinese documents suggest that there may have been rare direct contact, more likely during the Antonine period. The most specific evidence comes from the *Hou Han shu* or Annals of the Later Han Dynasty,

⁶⁶ Turner (1989: 5).

⁶⁷ Nappo, Chapter 17, this volume, especially Fig. 17.3.

⁶⁸ Tomber (2008: 129).

⁶⁹ Wheeler, Ghosh, and Deva (1946); Begley et al. (2004); Will (2004).

⁷⁰ Jahan (2005: 79, 81), citing Petech (1950).

⁷¹ Young (2001: 33–4); see also Sidebotham (1986: 143) and Graf, Chapter 15, this volume.

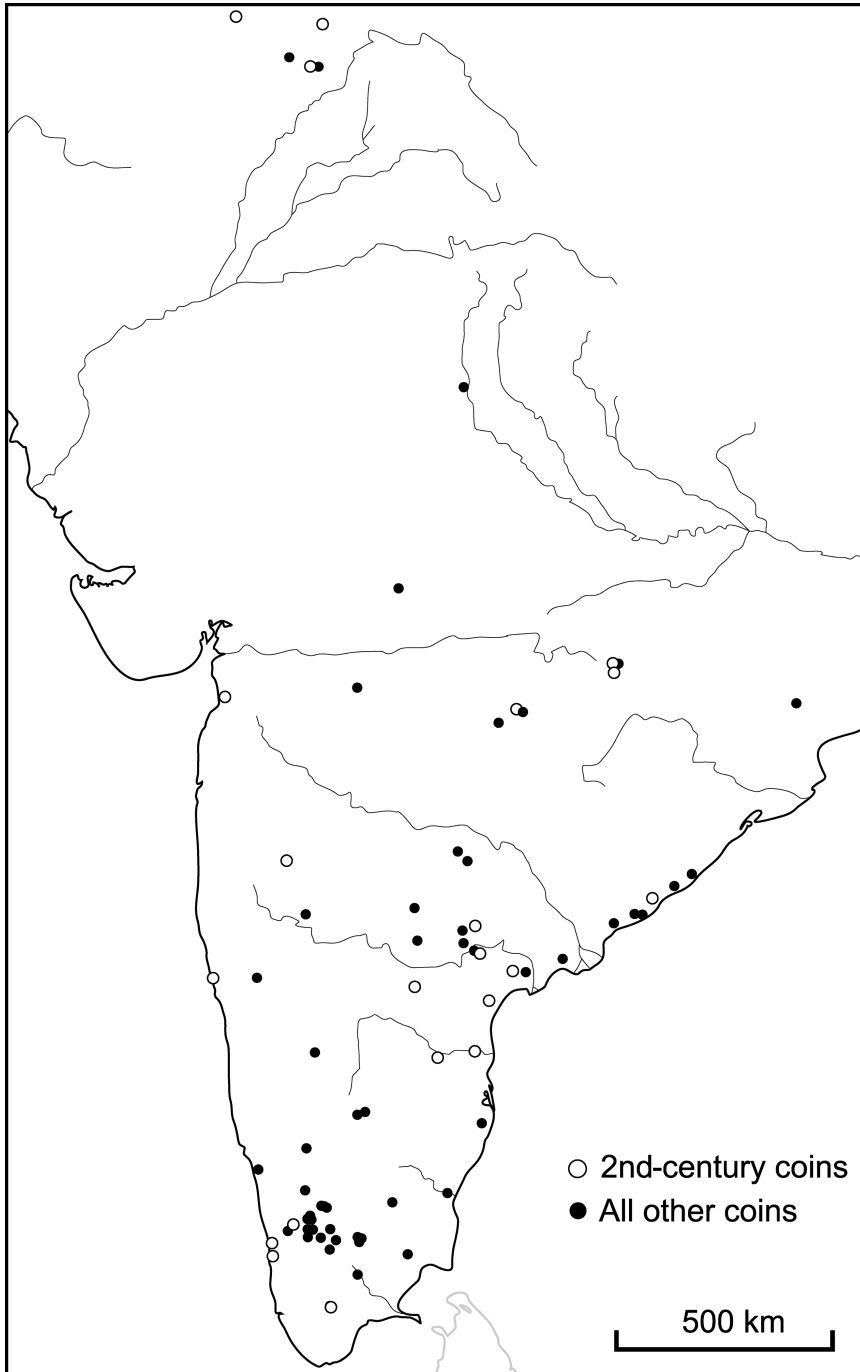


Fig. 16.4. Gold and silver coins from India, indicating second-century coins
(A. Simpson, modified from Turner 1989: map 1)

a fifth-century document containing earlier texts. This document, now published with a new translation and extensive commentary by Hill, mentions the visit from a Roman embassy to China in AD 166—although this embassy is thought to represent a consortium of merchants rather than diplomats.⁷²

PARTHIA AND PALMYRA

The Red Sea was not the only route to India, and Parthia, with its easy access to the north of the subcontinent, also traded there (Fig. 16.5). It is interesting to speculate on whether the annexation of Mesopotamia under Trajan (AD 115–17) and its abandonment under Hadrian had any visible impact on assemblages from Egypt, but it seems that the occupation was too short-lived to be materially recognizable in terms of pottery and other portable finds.

Instead, the relationship with Palmyra may have been the more significant factor in providing continuity before and after the occupation of Mesopotamia.⁷³ Given Palmyra's status within the Roman Empire, for all practical purposes the

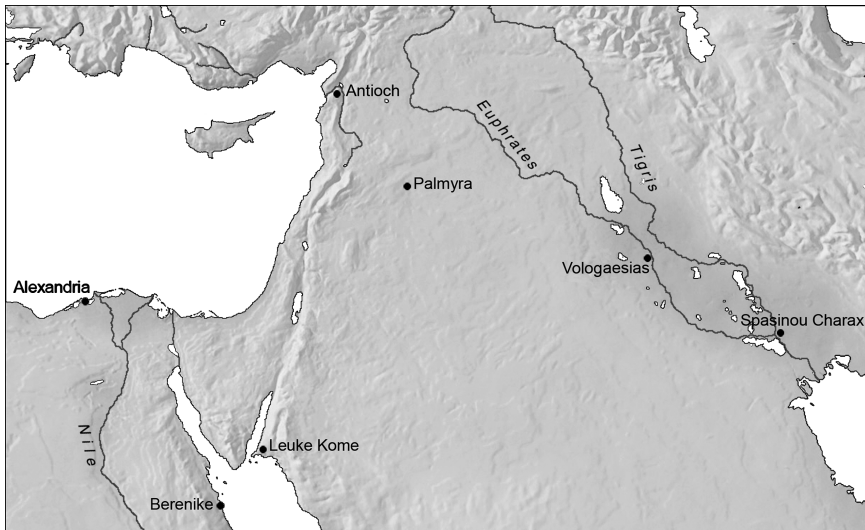


Fig. 16.5. The Persian Gulf and adjoining regions showing sites mentioned in the text (A. Simpson)

⁷² Hill (2009).

⁷³ Young (2001: 147) argues that Trajan's campaign strengthened Palmyra's social and political standing in Mesopotamia and helped promote its trading opportunities.

Palmyrenes were probably regarded by the Parthians as Roman,⁷⁴ a situation which particularly favoured Hadrianic and Antonine trade with Rome's then client kingdom Mesene. A survey from Palmyra shows that, while the caravan inscriptions range in date between the early first and the mid-third centuries AD, the majority cluster in the period AD 130–60.⁷⁵ These inscriptions are not simply a measurement of the intensity of trade, but reflect other social and political conditions, sometimes resulting from difficulties in trade.⁷⁶ Nevertheless, they provide an interesting gauge of activity, especially following the visit of Hadrian in AD 129/30. Gawlikowski attributes the reduction in inscriptions after AD 160 to an interruption of trade resulting from the campaign of Lucius Verus (AD 163) with a resumption of trade, on a smaller scale, after AD 192 following the death of Vologaeses IV.⁷⁷ Palmyrene activity in this long-distance trade may have diminished in the later third century. Although increasingly work at Palmyra demonstrates habitation extending beyond its sack by Aurelian in AD 272/3, this late occupation dating from the reign of Diocletian appears more military than commercial in character.⁷⁸

Like the Egyptians, the Palmyrenes had an interest in the trade of Indian and Arabian goods, which they obtained either indirectly from Parthia or directly, as they owned ships that undertook the journey to Scythia.⁷⁹ Their activity in the region was conducted through the Mesene ports on the Euphrates at Spasinou Charax and from c. AD 140 also Vologaesias.⁸⁰ To date, Indian artefacts that are found in such abundance at the Red Sea ports have not been identified from Palmyra. This may in part be due to the lack of a resident Indian community, which accounts for the large amount of Indian cooking wares on the Red Sea. Instead Chinese silk is well represented in archaeological contexts at Palmyra, probably arriving via north India,⁸¹ and indicates that a different range of materials was imported via this route than via the Red Sea.

Rare Mesopotamian finds have been identified from Myos Hormos and Berenike, and ceramics include Mesopotamian turquoise alkaline glazed tablewares.⁸² While these glazed vessels do not occur at Myos Hormos and Berenike in deposits of the second century, but generally in contexts either earlier or later, they provide evidence for at least indirect contact with Mesopotamia both

⁷⁴ For summaries of Palmyrene trade, see Young (2001: 139–51, esp. 143); Gawlikowski (1994); and Graf, Chapter 15, this volume.

⁷⁵ Seland (2008: 90); Young (2001: 144). ⁷⁶ Young (2001: 147).

⁷⁷ Gawlikowski (1994: 31). ⁷⁸ Kowalski (1997: 45).

⁷⁹ Gawlikowski (1994: 29). Scythia refers to Sind, part of Pakistan, an area that at the time of the *Periplus* was ruled by the Indo-Parthian kings (Casson 1989: 189).

⁸⁰ Gawlikowski (1994: 29); Young (2001: 140).

⁸¹ Pfister (1934: 39–60); Graf, Chapter 15, this volume.

⁸² For an overview of glazed wares, see Kennet (2004: 29–30).

before and after Trajan's annexation. Certainly the greater quantities are found in late Roman (fourth–sixth centuries) deposits, from the Sasanian rather than the Parthian period, and may reflect not new trade patterns but the intensification in trade that this period saw.⁸³ Another class of vessel found at Berenike, again during the late Roman period, is a lined transport container or 'torpedo jar',⁸⁴ probably originating in Mesopotamia or south-west Iran but travelling via Mesopotamia.

Some of these ceramic vessels may have reached the Egyptian ports through Palmyra, although, given their overall distribution patterns, a more convincing route would have been around the Arabian peninsula, via sites in Oman such as Khor Rori (ancient Moscha Limen), or Qana' (Kane) in Yemen.⁸⁵ Antioch seems to have been a major outlet for the export of goods traded by the Palmyrenes to the Mediterranean, as it was for the Parthians and for Roman Syria. Seland has demonstrated that, owing to the varying navigational seasons and conditions for each route, by exploiting both the Red Sea route and one via the Persian Gulf, the Romans were ensured a more regular supply of eastern goods to the Mediterranean than if they had been solely dependent on the yearly shipment via the Red Sea.⁸⁶ Two inscriptions found at Palmyra, dating to AD 161 and 174, mention the *tetarte*. Although this was previously assumed to refer to tax collection at Palmyra, a number of scholars think that these inscriptions instead refer to its collection at Antioch,⁸⁷ which would place Antioch in a similar situation to Alexandria and Leuke Kome.

Historically and archaeologically Palmyra is represented in the Eastern Desert in both commercial and military roles, primarily during the late second and third centuries. A Palmyrene dedication from the 'Palmyrene Red Sea shipowners' occurs at Coptos, possibly erected during the Hadrianic period.⁸⁸ Auxiliary troops and merchants resided at Berenike,⁸⁹ from where a Palmyrene shrine with a fragment of a bronze statue (possibly Hierobol/Yarhibol) and two inscriptions were recovered. The first inscription, dated to 8 September AD 215, is a dedication in Greek by a Palmyrene archer to the emperor Caracalla.⁹⁰ The second comprises a bilingual dedication to Hierobol/Yarhibol in Palmyrene and Greek dated to AD 180/5–212.⁹¹ A single vessel with a Palmyrene Aramaic inscription⁹² recovered from Myos Hormos also reflects the relationship between the Eastern Desert and Palmyra.

⁸³ Tomber (in press).

⁸⁴ Tomber (2007b).

⁸⁵ Tomber (2008: 100–8); Davidde, Chapter 18, this volume.

⁸⁶ Seland (2011).

⁸⁷ Sidebotham (1986: 110); Young (2001: 149); Seland (2008: 93).

⁸⁸ Casson (1989: 34); Sidebotham (1986: 95–6).

⁸⁹ Sidebotham and Wendrich (1998: 93–4).

⁹⁰ Verhoogt (1998).

⁹¹ Dijkstra and Verhoogt (1999).

⁹² See Healey in Tomber et al. (2011: 7–8).

EVALUATING THE SECOND CENTURY

This survey of ports, quarries, and roads in the Eastern Desert shows the second century AD to have been a period of prosperity in Indo-Roman trade despite changes in regional organization and fluctuations in activity, particularly at Myos Hormos and Berenike. Activity on the Red Sea, at ports situated only to facilitate trade with the East, demonstrates continuing trade in the second century. The pottery suggests this activity may have been weighted towards Myos Hormos between the mid-second to the mid-third centuries AD and probably from the early second century, yet in contrast it is at Berenike that one finds Palmyrene inscriptions dating to the later second and early third centuries. The construction of chronology is dependent on the precise dating of archaeological finds, particularly pottery, and examination of the relationship between the two sites and the level of activity at them is part of the ongoing study of the pottery from them.

Although more abundant, the pottery lacks the precision of the *ostraca*. At the moment, the pottery can be used to distinguish between the first and second halves of the second century (changes within the second half of the second century, if they exist, are too nuanced to detect), alongside rare markers that distinguish the first half of the third century, yet these distinctions require large assemblages that are not always available.

Further afield, at Mons Claudianus and Mons Porphyrites, where the state was more directly involved, the occupation sequences exhibit continuity, albeit reduced in intensity, between the first century and the early third and mid-third centuries respectively, indicating an ongoing official presence in the Eastern Desert. At Mons Claudianus in particular, with its sequence precisely dated by *ostraca*, it is clear that any reduction in occupation took place before the Antonine Plague, not as a result of it. Similarly, any contraction at Berenike seems to be from earlier in the second century.

To turn to India, a sprinkling of archaeological evidence reflects this continued trade, and importantly the Muziris papyrus informs on its continued value. While first-century Roman finds are more common in India than second-century ones, Nappo's conclusions indicate that the value of Roman coins does not differ substantially from the earlier period.⁹³ Roman amphorae appear to be reduced in quantity from the first century, but this need not indicate a decline in trade, but a change in items of trade or consumers of wine in India.⁹⁴

From Palmyra we see increased trade between AD 130 and 160, with the Palmyrene presence recorded at Berenike between c. AD 180 and 215. The

⁹³ Nappo, Chapter 17, this volume.

⁹⁴ Cobb (2015: 290) also suggests that a change in the traded items may account for the ostensibly reduced level of artefacts circulating during the second century.

period AD 130–60 may mark a shift in supply networks to the East, with Palmyra taking on a greater share than previously, and this may be reflected by a corresponding change on the Red Sea, including a change in trade items. Young has suggested that the Parthian war of the 160s may have disrupted traditional Palmyrene trade routes and resulted in some merchants relocating to Egypt,⁹⁵ which in turn may have altered the organization of trade on the Red Sea. Certainly the presence of Palmyrenes in the Eastern Desert and at Berenike indicates greater integration and cooperation between merchants and mercantile activities from the two regions.

The lack of identifiable deposits dating to the second half of the third century at Myos Hormos or Berenike means that the impact of Zenobia's incursion into Egypt in AD 269–72 cannot be gauged through material evidence; it is not until the fourth century that a resurgence in trade with a possible realignment of trading partners is apparent. The Palmyrenes interacted with, and depended upon, the Parthians, but the latter appear less significant in the Egyptian archaeological record than the Palmyrenes. While this may have altered later in the Sasanian period—in the fourth century—the lack of visible material dateable to the transition between the later Parthian and the early Sasanid Empire in the first quarter of the third century means this impact cannot be evaluated. Additional quantitative work on the finds from the Red Sea ports will do much to understand the relationship in trade between the first and second centuries, but this overview leaves no doubt as to second-century activity with changes that owed much to their relations with Palmyra. From at least the Hadrianic period, and particularly later in the second century, the Palmyrenes take on an important role, adding a new dimension to Rome's trade with the East.

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⁹⁵ Young (2001: 80–1); see also McLaughlin (2010: 104).

⁹⁶ Tomber (2013).

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Money and Flows of Coinage in the Red Sea Trade

Dario Nappo

The commercial relations between the Roman Empire and India have been of great scholarly interest, especially since the time of Mortimer Wheeler, for good reason.¹ Trade between these two areas of the world flourished: from the Far East came silk, spices, ivory, pearls, and many other goods into the Roman Empire. This commerce was usually described by the Romans themselves as a trade in luxuries, a result of the corruption of the *mos maiorum*, especially among the Roman elites.² But, in order to comprehend the real nature of such commerce, it is crucial to relinquish any sort of moralistic approach, and rather focus on the actual status among the Romans of these items of trade. Although some of them may indeed be regarded as proper luxury goods, it has been effectively pointed out that in fact many of those objects of trade were necessities for the Roman way of life, and had medicinal or religious applications.³ The issue of the great value of these 'luxury items' led both ancient writers and modern scholars to wonder about the subject of the costs and the profit connected to the trade with India.

Among the most ancient and probably the most famous statements on the topic are two by Pliny the Elder. In his *Naturalis Historia* he refers several

¹ The first to deal with the subject was Gibbon, in his *The History of the Decline and Fall of the Roman Empire* (1776–89); see also Warmington (1928; 1974). But the turning point for such studies were the excavations made by Wheeler at Arikamedu, in India, that for the first time provided some actual archaeological evidence of the trade between the two areas of the world (Wheeler 1976). Since then, the number of papers and works published on the topic has increased constantly.

² See Young (2001) for a full discussion.

³ The point was first made by Sidebotham (1986: 20–1), and subsequently taken up by most of the later scholars who have dealt with the topic—e.g. Ball (2000: 130); Young (2001: 14–17). Yet the old approach to the Indian trade as merely a trade in luxury items is still present in recent works, e.g. McLaughlin (2010: 7–10).

times to the Eastern trade and gives figures for its value, complaining about the huge amount of money the Empire spent on Eastern luxury goods, assessing a flow of 50,000,000 *sestertii* per year paid by the Empire in order to buy Indian merchandise, and adding that Indian merchandise was sold in the Empire at 100 times its purchase value:

Digna res, nullo anno minus HS [D̄] imperii nostri exhauriente India et merces remittente quae apud nos centuplicato ueneant.

(It is an important fact, that in no year does India drain less than 50,000,000 *sestertii* from our empire and send back goods which are sold among us at 100 times the price.)⁴

Pliny returned to the same topic in the twelfth book of his work, again complaining about the excessive amount of money wasted in such a trade:

Verum Arabiae etiamnum felicius mare est; ex illo namque margaritas mittit. Minimaque computatione miliens centena milia sestertium annis omnibus India et Seres et paeninsula illa imperio nostro adimunt: tanti nobis deliciae et feminae constant.

(But it is the sea of Arabia that has even a still greater right to be called ‘happy’, for it is this that furnishes us with pearls. At the very lowest computation, India, the Seres, and the Arabian Peninsula, withdraw from our empire one hundred millions of *sestertii* every year—so dearly do we pay for our luxury and our women.)⁵

Pliny’s accounts make two different points. On the one hand, we find a member of the Roman elite complaining about the decadence of Roman *virtus*.⁶ On the other hand, we find a somewhat detailed description of the costs involved in the trade with the foreign eastern countries. It is this second aspect of Pliny’s account that has generated a rich debate among scholars, and the trustworthiness of his figures has long been discussed: it is obvious that they cannot, in any case, be taken at face value.⁷ The fact that they are round

⁴ Pliny, *NH* 6.101, trans. Rackham (1942).

⁵ Pliny, *NH* 12.84, trans. Bostock and Riley (1855).

⁶ A view certainly shared by his contemporaries. See, e.g. Dio Chrysostom, *Orations* 79.5–6: Ἄρα ἐνθυμείσθε ὅτι πάντες οὗτοι, λέγω δὲ τοὺς Κελτοὺς καὶ Ἰνδοὺς καὶ Ἰβήρας καὶ Ἀραβας καὶ Βαβυλωνίους, φόρους παρ’ ἡμῶν λαμβάνουσιν, οὐ τῆς χώρας οὐδὲ τῶν βοσκημάτων, ἀλλὰ τῆς ἀνοίας τῆς ἡμετέρας; [...] πλὴν ὅτι λίθους μικροὺς καὶ ἀσθενεῖς καί, νῆ Δία, θηρίων ὅσα διδόντες λαμβάνουσιν ἀργύριον καὶ χρυσίον, ἀντὶ χρηστών ἄχρηστα ἀντικαταλλαττόμενοι (‘Are you aware that all these peoples—the Celts, Indians, Iberians, Arabs, and Babylonians—exact tribute from us, not from our land or from our flocks and herds, but from our own folly? ... They offer tiny, fragile pebbles and, forsooth, bones of wild beasts when they take our silver and gold, exchanging useless things for useful’). Also Tacitus, *Annals* 3.53 (reporting Tiberius’ words): *Promiscas viris et feminis vestis atque illa feminarum propria, quis lapidum causa pecuniae nostrae ad externas aut hostilis gentis transferuntur* (‘The apparel worn indiscriminately by both sexes, or that peculiar luxury of women which, for the sake of jewels, diverts our wealth to strange or hostile nations’).

⁷ Raschke (1978: 604–8).

figures suggests that they are not very accurate. Still, in both passages, Pliny provides us with minimum rather than precise amounts, something that would give a reason for the round figure. They are meant as a rough indication of the scale, rather than a precise evaluation. In one case Pliny seems to estimate a minimum yearly expenditure of 50 million *sestertii* for Indian merchandise only. In the second case, a minimum of 100 million *sestertii* is given for all items coming from Arabia, India, and China.

Despite their vagueness, I think Pliny's figures are a stimulus for economic historians to try and find an answer to questions concerning the costs involved in the trade with India, its profitability, and the actual flows of trade.⁸ Since Warmington, Pliny's accounts have often been interpreted as a proof that there was a serious imbalance of trade, draining a huge amount of gold and silver coins out of the Empire to the East, in order to buy expensive merchandise.⁹ As later pointed out by MacDowall, such an assumption is faulty, because it ignores the fact that Pliny actually refers to the amount of the expenditure in *sestertii* (the unit of account), rather than *denarii* (the coins actually traded to India), and it is therefore safe to assume that he is referring to the value of all the items exported by Roman traders, rather than to the amount of coins exported.¹⁰

Still, it has always been assumed that coins were an important part of Roman exports to India, providing the necessary amount of precious metal to buy the expensive Eastern items. The *Periplus Maris Erythraei*¹¹ offers a quite solid basis for such assumption. In fact, it often refers to exports of money and metals from the Roman Empire to India, but also makes some distinctions. When talking about Roman exports to Barbarikon (north India), the author lists χρῆμα¹² (which can be translated as money¹³), and silver plate. At Barygaza (still north India), the metals in demand are copper, tin, lead, antimony, and gold and silver money (δηνάριον χρυσοῦν καὶ ἀργυροῦν).¹⁴ At Limyrike (south India), we are told that there is a market for a 'great amount of money' (χρήματα πλεῖστα), antimony, copper, tin, and lead.¹⁵ It is thus clear that what is considered our best source on the Roman trade with India during the first century AD explicitly makes mention of coins among the items of trade.¹⁶

⁸ See the interesting discussion of De Romanis (1996) on the topic.

⁹ Warmington (1928: 272–318 = 1974: 272–318). The idea of a haemorrhage of coins due to the commerce with India is still quite popular among contemporary scholars: e.g. Young (2001) and De Romanis (2012). See also the last section of this chapter.

¹⁰ MacDowall (2003b: 39). See also recently Cobb (2015b: 199).

¹¹ For the references to the text of the *PME*, I have used here the version of Casson (1989). For a complete overview on the nature and problems of this text, see now Boussac, Salles, and Yon (2012).

¹² *PME* 39.

¹³ Casson (1989: 75).

¹⁴ *PME* 49.

¹⁵ *PME* 56.

¹⁶ A different view is reported by Pausanias, *Descriptio Graeciae* 3.12, 3–4: Λακεδαιμονίους δὲ κατὰ τὴν ὁδὸν ταύτην ἐστίν, ὥς ἤδη λέλεκται μοι, τὰ ὀνομαζόμενα Βοώνητα, Πολυδώρου ποτὲ οἰκία τοῦ βασιλέως· ἀποθανόντος δὲ παρὰ τοῦ Πολυδώρου τῆς γυναικὸς ἐπρίαντο ἀντιδόντες βούς.

To strengthen the evidence of the *Periplus*, evidence of Roman coins found in India is not rare, confirming that coins were actually exported.¹⁷

In this chapter I aim to contribute to the discussion triggered by the statements of Pliny on the general issue of the Red Sea trade, analysing what we know about Roman exports to India between the first and the second century AD, especially in relation to the export of coins. Traditionally, the study of taxation has been considered among the best available proxies for reconstructing the circumstances of the trade and the costs and profits related to it. Geographically, the key area for the analysis of such a matter is definitely the Egyptian Eastern Desert, where most of the actual taxation process took place and from where many documents relating to taxation come. The fiscal organization of this area has been studied over the years, and there is agreement on some aspects related to it. It is already well known that this area played an important role as a commercial route connecting the Roman world and the Far East.¹⁸ It has been also demonstrated that the Nile river port of Coptos¹⁹ acted as a hub for organizing the taxation of incoming Eastern goods. Here an *ad valorem* tax of 25 per cent was levied on the foreign items entering the Empire, from the Red Sea. Such a tax, called in Greek the *tetarte* ('quarter tax'),²⁰ is also attested as operating on other frontiers of the Roman Empire—for example on the border with the Parthian Empire.²¹ The very high rate suggests the importance that foreign trade had for the Roman fisc.

Apart from the *tetarte*, a different kind of tax was also levied at Coptos: tolls were charged there on merchants going to the Red Sea via the desert caravan routes.²² Although many aspects related to the taxes levied upon the

ἀργύρου γὰρ οὐκ ἦν πω τότε οὐδὲ χρυσοῦ νόμισμα, κατὰ τρόπον δὲ ἔτι τὸν ἀρχαῖον ἀντεδίδουσαν βοῦς καὶ ἀνδράποδα καὶ ἀργὸν τὸν ἄργυρον καὶ χρυσόν· οἱ δὲ ἐς τὴν Ἰνδικὴν ἐσπλέοντες φορτίων φασὶν Ἑλληνικὴν τοὺς Ἰνδοὺς ἀγώγιμα ἄλλα ἀνταλλάσσεσθαι, νόμισμα δὲ οὐκ ἐπίστασθαι, καὶ ταῦτα χρυσοῦ τε ἀφθόνου καὶ χαλκοῦ παρόντος σφίσι ('On this road the Lacedaemonians have, as I have already said, what is called the Booneta, which once was the house of their king Polydorus. When he died, they bought it from his widow, paying the price in oxen. For at that time there was as yet neither silver nor gold coinage, but they still bartered in the old way with oxen, slaves, and uncoined silver and gold. Those who sail to India say that the natives give other merchandise in exchange for Greek cargoes, knowing nothing about coinage, and that though they have plenty of gold and of bronze').

¹⁷ See, e.g. the lists of Roman coins in India provided by Turner (1989) and Suresh (2003).

¹⁸ Sidebotham (1986); De Romanis (1996); Tomber (2008).

¹⁹ On Coptos and its importance, see Maxfield (1996: 11–12); Rathbone (2002: 180); Bagnall and Rathbone (2004: 280–4).

²⁰ On this topic, the main source of information is still SB 18. 13167, also known as the 'Muziris papyrus'. See Harrauer and Sijpesteijn (1985: 124–55); Casson (1986: 73–9; 1990: 195–206); Thür (1987: 229–45; 1988: 227–33); Foraboschi and Gara (1989: 280–2); De Romanis (1996: 183–96; 1998: 11–60; 2010–11: 75–101; 2014: 73–90); Rathbone (2001; 2002: 179–98); Morelli (2011: 199–236).

²¹ See De Romanis (2006: 6–69).

²² The toll is attested in the 'Coptos Tariff', OGIS 2. 674; republished in SB 5. 8904. As is now clear from the available evidence, control of the fiscal system in the Egyptian Eastern Desert was in the hands of the arabarchs, whose origin dated to the Ptolemaic period. On the arabarchs and their organization, see Nappo (2007: 273–91).

merchandise entering the Empire have been investigated, relatively little is known about the fiscal organization of the caravan routes themselves and of the ports on the Red Sea, from which ships would depart towards the East. Until the late 1990s almost nothing was known about the taxation on the outgoing merchandise. This gap in our documentation has been reduced, thanks to a number of *ostraka* found at Berenike, a port located in the area of Ras Banas, the southernmost Roman settlement in Egypt and a terminal of the route connecting south India to the Roman Empire. Berenike's general role in the economy of the area has been described in a number of publications²³ and will not therefore be examined here. Analysis will be focused rather on the dossiers of *ostraka* discovered at Berenike and published in two volumes by a team of scholars led by R. Bagnall.²⁴ These documents can be used to shed a considerable amount of light on the dynamics of taxation on trade as applied in the Egyptian port and on the desert routes at large, and on the actual items exported,²⁵ but here I will focus only on those aspects connected to the process by which goods and their transporters passed through the customs gate at Berenike. These documents served as *laissez-passer* orders for goods going through the customs station of Berenike, on their way to being loaded on ships voyaging from there to locations along the African or Indian coast. Although some of these goods could have been used for personal consumption by the crew of the ships, most were in fact export wares.²⁶ These receipts of *laissez-passer* orders were issued somewhere on the Nile–Berenike route (most likely Coptos) and received by the officials in charge of the customs gate in Berenike; this would mean, according to the editors, that 'the amounts due were collected in the valley [i.e. at Coptos], with the goods then free to pass through the gate in Berenike'.²⁷ The first point worth stressing is that these documents for the first time attest unequivocally the presence of a customs post at Berenike. Although the taxes were paid elsewhere, the last step of the fiscal control took place at Berenike, before the outgoing goods left the Empire to the East.

The structure of the *ostraka* allows us to shed some light on the organization of this control. Generally speaking, we can summarize the structure of the documents as follows:

NN to NN, *quintanensis*, greetings; please, let pass for NN a X amount of some item.

²³ Sidebotham and Wendrich (1995; 1996; 1998; 1999; 2000; 2007); Sidebotham (2002; 2011).

²⁴ Bagnall, Helms, and Verhoogt (2000; 2005). The documents cited from these two volumes are hereafter referred to as *O. Berenike*.

²⁵ So far 260 *ostraka* have been published, and most of these documents come from a Roman dump dated to the first century AD: Bagnall, Helms, and Verhoogt (2000: 3).

²⁶ Bagnall, Helms, and Verhoogt (2000: 8).

²⁷ Bagnall, Helms, and Verhoogt (2005: 5).

This general pattern includes a writer who addresses an officer to request a *laissez-passer* for people carrying some quantities of items (most commonly wine, but also oil and vinegar). The addressees are often qualified by their name and the title of *quintanensis*, but exceptions to this rule do exist. Here I report three different examples of these receipts, to give reasons for the possible variations in the structure (*italika* = ‘Italian amphorae’; *rhodia* = ‘Rhodian amphorae’):

1. *O. Berenike* 51, from the dossier of Andouros (*O. Berenike* 50–67):

Ἀνδουρωι κουιντ(αησίωι)· πάρες
 Τιβερίου Κλαυδ(ίου) [Ἀχιλλέωσ] Δωρίωνος
 Παουῶτι Παοῦτος ἰταλικὰ
 δέκα, (γίνεται) ἰταλ(ικὰ) ι.

(To Andouros, *quintanensis*, let pass of Tiberius Claudius [Achilleus] Dorion, for Paouos son of Paouos, 10 *italika*, total 10 *ital(ika)*.)

2. *O. Berenike* 11, from the dossier of Sosibios (*O. Berenike* 1–35):

Σωσίβιος Ἀνδουρω(ι) χα(ίρειν) πάρες Ἀνδουρω(ι)
 Παχ() οἶνον ἰταλ(ικὰ) ς.

(Sosibios to Andouros, greetings. Let pass for Andouros son of Pach() 6 *italika* of wine.)

3. *O. Berenike* 36, from the dossier of Robaos (*O. Berenike* 36–49):

[Ρ]οβαος τοῖς ἐπὶ τ[ῇ] πύλῃ χα(ίρειν)
 πάρετε Ἀρνώθηι [εἰς]
 [ἐ]ξαρτισμὸν ῥόδ(ια) η.

(Robaos to those in charge of the customs gate, greetings. Let pass for Haryothes for outfitting, 8 *rhodia*.)

As a close look at the examples provided can prove, the slight differences in the structure of the documents do not imply any difference in the use and the meaning of these documents. For instance, the *quintanenses* of the first example are the ‘people at the customs gate’ of the third one. As pointed out by the editors,²⁸ the phrase ‘people at the customs gate’ was used by a writer who did not know the name of the officer he was addressing, and allows us to understand, on the one hand, that the *ostraka* were used by the merchants as *laissez-passer* to go through the customs gate at Berenike, and, on the other hand, that the officer in charge of controlling this process was called a *quintanensis*.

²⁸ Bagnall, Helms, and Verhoogt (2000: 8–12).

The last group of documents I would like to analyse here is in fact the dossier of Sarapion—that is, *O. Berenike* 153–83. The reason why this group of documents deserves its own analysis depends not on its structure,²⁹ but rather on the texts of the *ostraka*. It is immediately evident that Sarapion's *laissez-passer* are composed of two different subgroups. We in fact have a number of documents (*O. Berenike* 153–7, 164, 167, 168, eight in total) in which the writer, Sarapion, always addresses the *quintanensis* Andouros to request a *laissez-passer* for people carrying wine, as it is possible to see in the following example (*O. Berenike* 153):

Σαραπίων Κασίου
 Ἀνδουρωι χ(αίρειν)· δι(απόστειλον) Ψενο-
 σίρις Πακοίβεω(ς) οἶ-
 νου λαδικ(ηνοῦ) κερ(άμια) β. σεση(μείωμαι).

(Sarapion son of Kasios to Andouros, greetings. Dispatch for Psenosiris son of Pakoibis 2 jars of Laodicean wine. Signed.)

The documents belonging to this first subgroup show no difference from the ones already analysed. In the documents of the other subgroup, instead, the writer addresses the *quintanensis* Pakoibis, not Andouros, and this time he asks for a *laissez-passer* for people carrying *μαρσιπ* (...), as shown in the following example (*O. Berenike* 162):

Σαραπίων Κασίου
 Πακοίβι χ(αίρειν)· δι(απόστειλον) Ἀν-
 τωι Τχαλιου μαρσίπ(πια)
 σλε. σεση(μείωμαι).

(Sarapion son of Kasios to Pakoibis, greetings. Dispatch for Antos son of Tchalios 235 bags. Signed.)

The first conclusion that it is possible to infer from this difference is that the dossier of Sarapion proves that the customs at Berenike probably had a complex articulation, with different 'offices' according to the different merchandise the traders needed to export. So when Sarapion needs to export wine, he sends his merchants to Andouros, whereas when he needs to export *μαρσιπ*(), he sends them to Pakoibis. For a complete understanding of this process, it is crucial to solve the abbreviated word *μαρσιπ*(). The editors interpreted it as an abbreviation for *μαρσίππια*.³⁰ The Greek word *μάρσιππος* is well attested in the papyri, and its diminutive (*μαρσίππιον*) appears in the *ostraka* from Mons Claudianus.³¹ It means 'a (carrying) bag, a container', something to transport items. So we can interpret *μαρσίππιον* as a bag, but in no case in the text is the content of these bags specified, as is clear in the

²⁹ In terms of structure, the dossier of Sarapion can be considered as an example of what I listed as group 2.

³⁰ Bagnall, Helms, and Verhoogt (2005: 63).

³¹ *O. Claud.* 227; 231; 248.

Table 17.1. Attestation of *μαρσίππια* in *O. Berenike*

Text	Number of <i>μαρσίππια</i>
159	56
160	160
162	235
163	112*
165	97*
166	160*
170	73
172	160
173	21
174	68
177	119*
185	5

Note: * = *διπ(λᾱ)*, 'double'.

example provided. The quantities of *μαρσίππια* involved in the texts from Berenike are very high, as can be seen in Table 17.1.³²

The quantities marked with a * are qualified in the *ostraka* with *διπ(λᾱ)*, 'double', which suggests that the word *μαρσίππιον* stands as a standard unit of measurement. So we can say that the *μαρσίππια* were used to transport items in standard packages and dispatched in very large quantities, given the amounts of *μαρσίππια* attested in the documents.

I would suggest that coins would be a perfect content for *μαρσίππια*. This interpretation is supported by the papyrological evidence. In fact in the papyri the word *μαρσίππιον* is often used as the equivalent of the English purse, a bag of coins.³³ When used with this meaning, it is sometimes attested in the phrase *μαρσίππιον ἐσφραγίσμενος*,³⁴ 'sealed *marsippion*', which might give a new hint to understand the nature of the documents we are dealing with.

This suggestion may become clearer when one thinks of how the actual system for transporting merchandise and coins over the desert worked. The cargoes would leave Alexandria, the big *emporion* on the Mediterranean, to be conveyed to Coptos on the Nile and from there overland to Berenike. As far as we know, merchants would borrow the money for their commercial expeditions from wealthy people willing to finance such trade, reaping huge profits from these loans.³⁵ It is reasonable to imagine that these financiers would also

³² As pointed out by the editors (see Bagnall, Helms, and Verhoogt 2005: 64, n. 6), the median of the quantity of *marsippia* falls between 112 and 117, a huge amount, if compared to the median of *ladikena* of wine, which falls between 4 and 6.

³³ See, e.g. *P. Sarap.* 55; *P. Tebt.* 337; 797; 1151; *P. Mert.* 113; *P. Oxy* 1670; 2728; *P. Cair. Zen.* 59010; 59069; *P. Petr.* 107.

³⁴ Attested, e.g. in *P. Mert.* 3, 113; *P. Oxy.* 2728; *P. Cair. Zen.* 59010; 59069.

³⁵ This practice is attested in *SB* 18. 13167. See also the bibliography cited at n. 20.

have provided the merchants with the coins to trade in India. At this point it is worth remembering that Roman coins found in India are mostly *denarii* or *aurei*³⁶—that is, types of coins of officially forbidden circulation in Roman Egypt.³⁷ In fact, although the excavations at Berenike yielded Roman bronze coins and Ptolemaic *tetradrachmai*, not a single *denarius* or *aureus* was found. However, as the Roman *denarii* found in India did indeed arrive from Egypt, we are confronted with a seemingly insoluble contradiction. The answer to such a puzzle is, in my opinion, represented by the *μαρσίππιον ἐσφραγίσμενος*. The coins necessary for the trade with the Indians would be collected in sealed bags with a standard amount of coins (and, consequently, of standard weight). This would guarantee both the financier and the merchant: the financier would be sure that the traders could not open the bags and try to steal some coins, and the traders would be able to count the coins more quickly (they could be counted bag by bag, rather than one by one). Comparative examples for this hypothesis do exist. The first one is the so-called ‘tesoretto di Rimigliano’,³⁸ discovered in 2002 off the shores of Italy. The ‘tesoretto’ (‘treasure’, or ‘hoard’) comes from a wreck in the Tyrrhenian Sea, and is composed of a group of silver coins (overall c.3,600, mainly *antoniniani*, but also a few *denarii*). Because of oxidation, the coins are still in the position they were in when the ship wrecked. They form a block of vaguely spherical shape, which led the editors to think that the coins were originally kept in a basket. The coins also appear to have been divided into smaller globular packages, small leather bags put into the basket. The small bags contain a standard amount of silver coins, split into groups of ten units, in order to facilitate the process of counting them. The ‘tesoretto’ has been interpreted as an example of the standard way of transporting coins on the Roman ships. Its structure can easily be compared with the one proposed for the *μαρσίππια* attested in the Berenike *ostraka*.

Another piece of evidence supporting this interpretation comes from the soil of India itself. Unfortunately, unlike the ‘tesoretto di Rimigliano’, the circumstances of the find are not reported in much detail. In 1847, hundreds of excellently preserved *aurei* were found on the slope of a hill by the sea at Kottayam, in the region of Tamilnadu. The coins were all from a hoard unearthed by local villagers, and unfortunately most of them were dispersed, never to be found again. The exceptional nature of this find lies not simply in its size (hoards with hundreds of Roman coins are not extremely rare in India), but rather in the quality of the coins themselves and in the way they had been concealed in the ground. Captain H. Drury was the first to report

³⁶ Turner (1989).

³⁷ Harl (1996: 117–24).

³⁸ It was found in 2002 near Livorno, in Tuscany. See De Laurenzi (2004).

such a discovery. His account, although deficient in some details, is long and interesting, and I reproduce the most relevant bit of it:

A most interesting discovery of a large quantity of ancient Roman gold coins has lately been made in the neighbourhood of Cannanore on the Malabar coast, not only remarkable for the numbers found (amounting to some hundreds) but also for their wonderful state of preservation. Many appear almost as fresh as on the day they were struck: the outline of the figures is so sharp and distinct, and the inscriptions so clear and legible. With very few exceptions, they are all of gold, and of the age of Imperial Rome from Augustus downwards, several of them being coeval with the earliest days of the Christian era. . . . The purity of the gold, especially attracted the notice of the jewellers and the wealthier natives, who purchased them for the purpose of having them melted down for trinkets and ornaments, and many, it is to be regretted, have been, irretrievably lost in this way. . . . It now appears that they were accidentally discovered in the search for gold dust by the gradual clearing away of the soil on the slope of a small hill in the neighbourhood of Kottayem, a village about ten miles to the eastward of Cannanore. A brass vessel was also found, in which many of the coins were deposited. For a length of time the numbers appear to have been very great, and it has been stated that no less than five cooly-loads of gold coins were dug out of the same spot. It is impossible to make any correct calculation as to the numbers which have actually been found, but it might be mentioned that about eighty or ninety have come into the possession of His Highness the Baja of Travancore, and a still greater quantity has been collected and preserved by General Cullen, Resident in Travancore, while even after the lapse of more than a year from their first discovery they are still procurable from the natives in the neighbourhood of Tellicherry and Calicut.³⁹

For the present discussion, the most interesting elements of Drury's report are that some of the coins were in a brass vessel, and that with a few exceptions they were all of gold, amounting to no less than 'five cooly-loads'.⁴⁰

Some years after the discovery, another account of the find was written, pointing out how the coins seem to have reached India in some sort of bags:

Agreeably to my last note, I now beg to furnish you with the information of the discovery of gold coins here. About three years ago certain Syrians residing at Keelaloor Dashom in Palashy Amsham of the Cotiacum taluk were in the habit of collecting gold from the bed of the river Vanienkudavoo (by taking the sand and sifting it), which was between Keelaloor Dashom and Vengador. One day, whilst they were engaged in digging the bed of the river, a number of gold coins were found in a part where there was a mixture of sand and mud. These were lying

³⁹ Drury (1852: 371–87).

⁴⁰ Note that Turner (1989: 8) suggests that this would mean not fewer than 8,000 coins. (A 'cooly load' varied in British India, by region and over time, between 40 and 72 lb weight; five 'cooly loads' would therefore weigh a minimum of 200 lb, or 90.8 kg.)

buried in the ground, but not in a vessel. A great quantity was taken, but nobody knows how many. Some suppose that these might have been buried here in bags, which have been destroyed.⁴¹

The Kottayam hoard, although the accounts of it are not very detailed, seems to present some similarities with the structure of the 'tesoretto di Rimigliano'. The area of the find is significant: Kottayam is situated on the west coast of Kerala, near Cochin. Recent archaeological excavations have identified in this area the ancient port of Muziris.⁴² The presence of such a big hoard near the ancient large entrepôt should mean that it was probably buried soon after its arrival in India, therefore representing a unique sample of how a group of coins was shipped to India. The size, fine condition of the coins, and the possibility that the hoard was buried in a Roman brass vessel (mentioned by Drury but not by Thurston), all suggest that the hoard may be a deposit made by a western trader, rather than a local trader's collection of goods.⁴³

I would suggest that the 'tesoretto di Rimigliano' and (possibly) the Kottayam hoard can be used to understand what is behind the word *μαρσίππια* of the *ostraka*. The dossier of Sarapion, if the proposed interpretation is correct, sheds new light on the organization of trade in the Eastern Desert, telling us how the delivery of the Roman coins to India was actually organized.

If the speculations made so far are sound, then we can proceed to a further step in this analysis, trying to deal with the issue of the presence of Roman coins in India and their significance to understand the flows of the trade. The subject has excited the interest of many scholars over the years, who have put forward various hypotheses to use this kind of evidence as a proxy to understand the development of Roman trade with India.⁴⁴

Generally speaking, we can safely say that coins are among the most impressive archaeological evidence of Roman contacts with India. Around 7,000 silver and gold coins, dated between the Republican age and the beginning of the reign of Caracalla, have been recorded on the Indian subcontinent.⁴⁵ The bulk of the coins were found in the southern regions of the country, in the area around the Coimbatore district. Most are silver coins, and their chronological distribution shows a predominance of early imperial coinage, especially from the reigns of Augustus and Tiberius.

Some authors have drawn conclusions directly from the chronological distribution of coins in the hoards to the intensity of the Roman trade with India. Sewell, Gupta, Turner, and Suresh supposed that there was a major

⁴¹ Drury (1852: 382) = Thurston (1894: 12–13).

⁴² Cherian (2007; 2008; 2009); Cherian et al. (2009).

⁴³ Turner (1989: 8–9).

⁴⁴ See, e.g. Turner (1989); Suresh (2003); MacDowall (2003a, b); De Romanis (2012).

⁴⁵ Although biased with several defects, the catalogues provided by Turner (1989) and Suresh (2003) are still the best available ones so far on the subject. Also, see now De Romanis (2012: 180–3), although his catalogue encompasses only the period between Augustus and Nero.

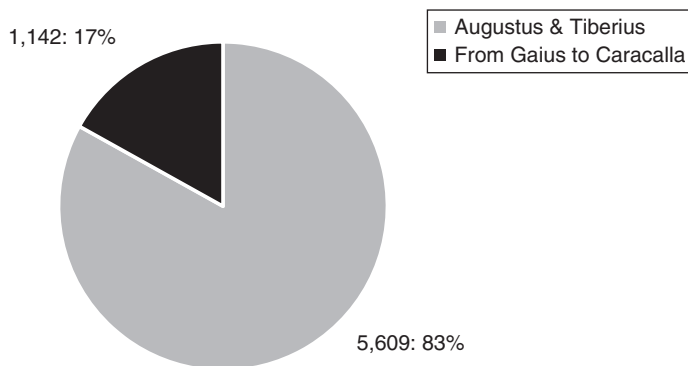


Fig. 17.1. Proportions of Roman coins found in India struck in the reigns of Augustus and Tiberius compared to those struck from Gaius to Caracalla; total = 6,751

thrust of trade in the later part of Augustus' reign.⁴⁶ According to them, even before the reign of Nero, Indian traders began to lose confidence in the *denarius*, because of the reform of the coinage promoted by the emperor, and the *aureus* took over in the exchange, definitively after AD 64. In the second century AD the trade continued, but on a smaller scale. According to Turner, the period of great volume of trade from India to the Roman Empire was restricted in time to the earlier part of the first century AD.⁴⁷

Before questioning such an interpretation, it is worth underlining that the sample of Roman coins found in India is rather limited. As said before, we can rely only on a corpus of fewer than 7,000 coins issued between the reigns of Augustus and Caracalla—that is, over almost 250 years, which works out an average of fewer than 30 coins per year. That preliminary statement should always be kept in mind when trying to use this kind of evidence to infer anything about Roman trade with India.

The interpretation put forward by Turner is clearly based on a very noticeable feature of the corpus of Roman coins found in India: as can be seen in Fig. 17.1, the number of coins struck under the emperors Augustus and Tiberius is simply overwhelming compared to the coins struck between the reigns of Gaius and Caracalla. The Augustan and Tiberian coins constitute in fact 83 per cent of the total. They are mostly *denarii*, generally in mint condition, mainly belonging to two numismatic types: CL CAESAR (Augustus) and PONTIF MAXIM (Tiberius).⁴⁸

The first possible objection to a simplistic deduction from coin numbers over time would be to point out that, as stated by our literary sources, coins were not the only item used by the Roman traders to buy Indian goods. Wine,

⁴⁶ Sewell (1904); Gupta (1961); Turner (1989); Suresh (2003).

⁴⁷ Turner (1989: 20–5).

⁴⁸ De Romanis (2012: 170–1).

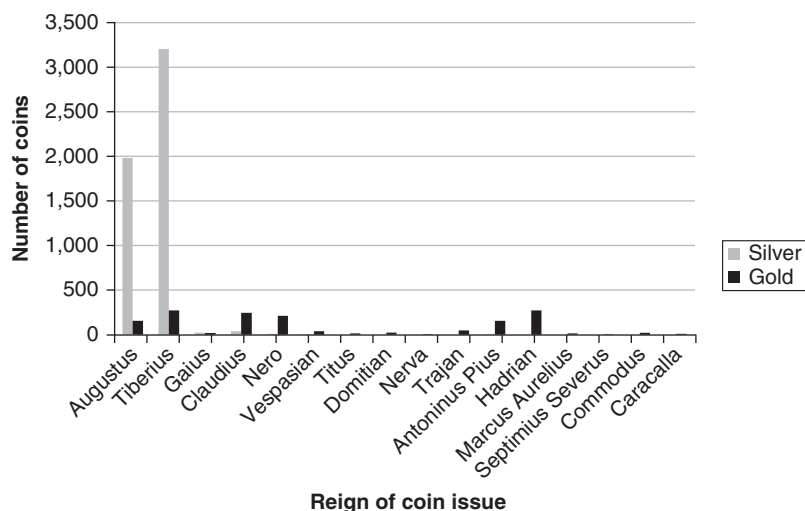


Fig. 17.2. Chronological distribution, by reign of issue, of numbers of Roman gold and silver coins found in India

oil, textiles, and glass at least are also featured among the most common Roman exports to the Indian subcontinent.⁴⁹ For this reason, a reduced number of coins over the post-Tiberian period does not necessarily mean a diminished level of exchange with India. But I think that there is a second, more telling, objection concerning the nature of the coin finds themselves. As stated above, most of the Augustan and Tiberian coins come from a relatively small area, around the district of Coimbatore, so it might be argued that for some accidental reason the coins that arrived in that region were hoarded, whereas most of those distributed in the rest of the Indian peninsula were melted down.⁵⁰

As I will show in the last section of this chapter, regardless of the way in we choose to interpret the numismatic evidence from India, the idea of using coins to prove a decline in trade after the period of Tiberius is wrong. In fact, even just limiting our analysis to the dating of the coins, it is possible to draw a rather different picture of Roman trade with India from the one proposed by Sewell, Gupta, Turner, and Suresh. In order to do so, I will first analyse the coins according to the emperor who struck them, distinguishing between silver and golden issues, as shown in Fig. 17.2. The chart clearly underlines the striking difference in the amount of coins from the Augustan and Tiberian period, compared with those of the following emperors. This seems to confirm the traditional interpretation suggested by many scholars. Nevertheless, I am

⁴⁹ See, e.g. the part of the text of the *PME* referred to, p. 559.

⁵⁰ As suggested by MacDowall (2003b: 41–3).

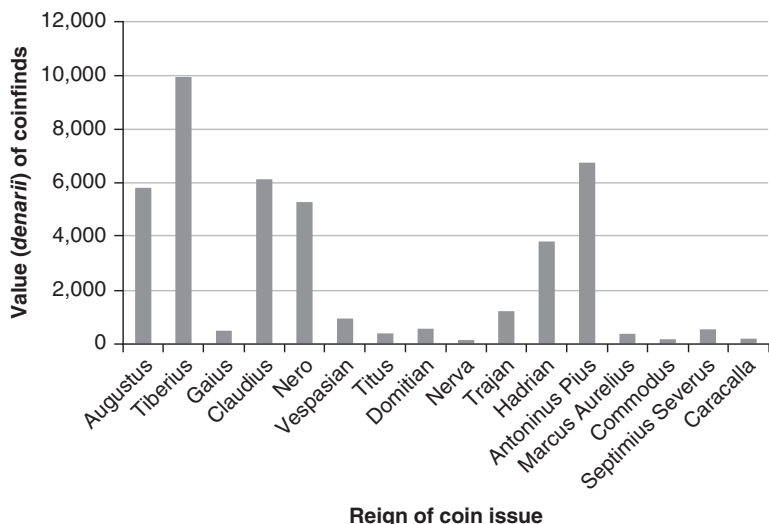


Fig. 17.3. Chronological distribution, by reign of issue, of the total face value (in *denarii*) of Roman coins found in India

not convinced this is indeed the only or the best way to look at the evidence. If we try to measure the level of trade simply by counting the coins, irrespective of their intrinsic value, we would suppose that under the first two emperors of the Julio-Claudian dynasty there was a surge in commerce unmatched in the following era. The problem with such an argument is that it is dangerously misleading, because it does not recognize any difference between silver and gold coins as indicators for the trade.

We cannot simply analyse silver and gold coins as though they were the same. It is necessary to bear in mind an obvious but still underestimated detail: in the Roman world the value of a gold coin (*aureus*) was twenty-five silver coins (*denarii*). So, if we are not interested in merely counting coins, but rather in measuring Roman investment in trade, we need to treat the evidence in an appropriate way.

In Fig. 17.3 I show the same data as used for Fig. 17.2, but this time I have reported the value (expressed in *denarii*) of the coins found in India, again grouped by emperor. As we can easily see, the scenario changes significantly. We still have a peak in the time of Tiberius, but the value of exports under Claudius and Nero is at the same level as under Augustus. The chart then shows a decline under the Flavian dynasty, followed by a clear recovery from the age of Trajan, which reaches its peak under the reign of Antoninus Pius, showing an overall value higher than that under Augustus.

If we divide the value of the coins by the years of reign of each emperor, we find a different picture again. From Fig. 17.4 we see that the value of coins

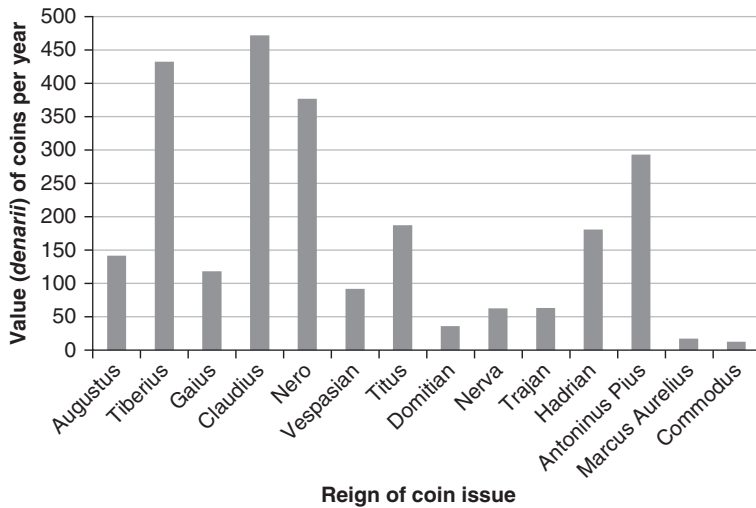


Fig. 17.4. Chronological distribution, by reign of issue, of the face value (in *denarii*) of Roman coins found in India, divided by the number of years of each reign

‘exported’ to India remains fairly stable between the reigns of Tiberius and Nero. If we take into account that for numismatic statistics Tiberius and Gaius are usually taken together, the stability of this period is even more evident.

The evidence offered by the charts can provide some insights into Roman trade flows with India. Summing up, we can make the following numismatic points from Figs 17.1–17.4:

1. Post-Tiberian *denarii* are extremely rare (Fig. 17.1).
2. The presence of Roman coins (at face value) seems to be relatively stable between the age of Tiberius and the age of Nero (Figs 17.3–17.4).
3. The presence of Roman coins (counted at face value), after a decline under the Flavians, seems to recover from the age of Trajan, increasing up to Antoninus Pius (Fig. 17.3).

This evidence has been discussed to some extent by contemporary scholars; I will briefly summarize the main points put forward so far, and then offer my own interpretation of the evidence. The first to deal with the subject in a detailed manner was S. Bolin: he started from the fact that most of the *denarii* found in India and dated from the reigns of Augustus and Tiberius were in mint condition, and that they were of only two types, the CL CAESAR (Augustus) and the PONTIF MAXIM (Tiberius). Bolin therefore postulated that the coins exported to India had never previously circulated in the Roman market. Roman traders would have obtained them either ‘direct from the mint or from money-changers with large stocks of newly minted *aurei* and *denarii*,

and taken on board and shipped to India'.⁵¹ A similar opinion was later expressed by M. Crawford, who pushed Bolin's idea further, suggesting that only members of the imperial family would have regular access to freshly minted coins and the Eastern trade must have been controlled by them.⁵² Both these interpretations have been undermined by the lack of die linkages among the Roman coins recovered so far in India.⁵³

Subsequently, D. MacDowall reprised the subject in a number of works. His main points may be summarized as follows:⁵⁴

- I. The composition of hoards of *denarii* in India is different from that of hoards from inside the Empire.
- II. The *denarii* in the 'Indian' hoards were carefully selected, which can be inferred from the fact that most of them have the same reverse.
- III. There are few Republican *denarii*, and those that are found mainly come from hoards in India dated to the second century AD, when Republican *denarii* disappear from hoards inside the Empire.

Starting from these points, MacDowall claims that Julio-Claudian *denarii* arrived in India only in the Flavian period and that the worn Republican *denarii* arrived after Trajan's debasement in AD 107. MacDowall's thesis is also based upon a detailed analysis of hoards of the period across the Roman world.

Nevertheless, his theory seems to be too rigid. In fact, we have evidence of Republican *denarii* that arrived well before the second century AD: Suresh cites the recent discovery of unworn Republican coins from Ajaigadh, Krishnagiri, and Tiruppur to support such a claim.⁵⁵

In recent years, F. De Romanis suggested a new interpretation of the monetary evidence from India. According to him, the best way to understand it would be to contrast it to the numismatic evidence from the area of Pompeii and Vesuvius, in Campania. De Romanis points out that the types of *denarii* most scarce in Pompeii are the pre-AD 64 reform ones, which also happen to be the most abundant ones in the Indian hoards. The author goes further to try to establish a connection between the two facts, declaring that the pre-64 reform *denarii* were scarce in the Vesuvian area, given the abundance of traders living there who were involved in commerce with India, and who would have used them to trade abroad.⁵⁶ Such a hypothesis, albeit intriguing, does not seem entirely convincing.⁵⁷

⁵¹ Bolin (1958: 73).

⁵² Crawford (1980: 207–18). It should be noted that his idea of a significant involvement of the imperial entourage in the trade is in general confirmed by the documentary sources.

⁵³ MacDowall (1996: 83).

⁵⁴ MacDowall (1996; 2003a; b).

⁵⁵ Suresh (2003: 29).

⁵⁶ De Romanis (2012).

⁵⁷ For a more traditional interpretation of the Pompeian evidence, see Lo Cascio (1980).

I personally think that De Romanis is certainly right in remarking that the exports of Roman coins to India might have affected the amount of currency circulating inside the Empire,⁵⁸ but in my opinion the connection he makes between the Vesuvian area and India is too contrived. Both MacDowall and De Romanis make very interesting points in their reconstructions, but I would disagree with the final conclusions of both of them.

In my view, the key to understanding the whole functioning of the system is a crucial sentence of the *PME*. The author, when writing about Barygaza and the items that it is possible to trade there, says that Roman traders bring there *δηνάριον χρυσούν και ἀργυρούν, ἔχον ἀλλαγὴν και ἐπικέρδειάν τινα πρὸς τὸ ἐντόπιον νόμισμα* ('gold and silver Roman coins, which command an exchange at some profit against the local currency').⁵⁹ This sentence has been studied by MacDowall, who remarkably put it in context with an Indian inscription dated to year AD 42,⁶⁰ which would indicate that at the time the exchange ratio between gold and silver in western India was 1:10.⁶¹ In the same period, in Rome, the gold:silver ratio was 1:12. This means that Roman traders could make a good profit using silver (rather than gold) as a metal for trade in India. And it also gives the reason why, until the reform of Nero, Roman traders used mostly *denarii* rather than *aurei* for their business in India. It was simply much more profitable.

The reforms of Nero and later Vespasian changed the gold:silver ratio first to 1:11 and then to 1:10, exactly the same as in India. That made the old pre-reform *denarii* a much more valuable currency (for their intrinsic value) than the new *denarii* (which still had the same face value). It is easy to understand that at this point the use of the old pre-AD 64 *denarii* was no longer attractive for transactions within the Empire: the best way to make use of them would be either to melt them down or to export them somewhere where they could still be appreciated for their intrinsic value, such as India.

If this hypothesis is sound, the implication is that for the first century of the trade between the Roman Empire and India coins (mostly silver) played a key role, not just as a means of exchange, but as a financial tool to make some profit by speculation. This means that they were steadily used between the age of Augustus and Nero. Under the latter, and even more under Vespasian, there was a major export of *denarii* to India, in response to the new monetary reforms promoted by these two emperors. In subsequent years, coins were likely to have lost their role as a key export product. Only occasionally, at the time of new reforms of the monetary system, was it again convenient to export them, as, for example, under Trajan.⁶²

⁵⁸ An interesting point is the connection with Tacitus' text reporting a speech of the emperor Tiberius (see n. 6).

⁵⁹ *PME* 49; trans. Casson (1989: 81). Note that the Greek text has the word *denarion*, which Casson (with reason) takes as meaning generally 'Roman coin'.

⁶⁰ *Epigraphia Indica*, 8. 82. MacDowall (1991: 151–2).

⁶¹ MacDowall (1996: 92).

⁶² I entirely agree here with MacDowall (2003a: 11–12).

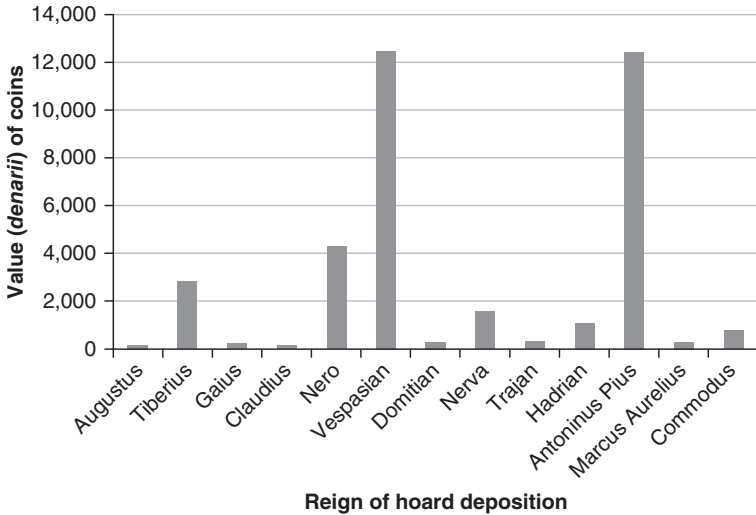


Fig. 17.5. Chronological distribution, by reign of hoard deposition, of the total face value (in *denarii*) of Roman coins found in India

This trend is clearly visible in Fig. 17.5, which takes into account the date of the hoards of the coins. Although I think that the picture is too schematic (hoards could have been assembled with coins coming to India over a long period of time), it agrees with what I have tried to argue so far.

Overall, I think that the analysis of the available numismatic evidence is crucial—not to determine any fluctuation in the general volume of trade over the first two centuries AD, but rather to understand the existence of economic and financial tools that shed a good deal of light on the functioning of the Roman economy and market. It is possible to see from Figs 17.3–17.5 that the export of coins kept going well into the second century AD (contrary to any idea of decline of such commerce after Nero, based on the numismatic evidence). Instead the second century AD itself is a period for which we have significant literary, archaeological, and documentary evidence that the trade between Rome and India was not just continuing, but probably entering into a phase of expansion.⁶³

⁶³ Nappo (2015). Recently, Cobb (2015a) argued that the numismatic, archaeological, and literary evidence shows the second century AD to have been a period of shrinking of the trade between Rome and India. Cobb bases his theory largely on the analysis of the numismatic evidence from India and the chronology of the foundation of most of the forts along the caravan routes in the Eastern Desert. While the latter provides only a *terminus post quem* for a new phase of exploitation of the route, what I have argued so far (and at least in part what is also argued by both De Romanis and MacDowall) shows that placing too much emphasis on the Roman coins found in India and dated to the period of the Flavians misses the main point of the whole trade—that coins were only one of the many items exported to India and that their main importance lies

Finally, one more comment on Roman coins from India during the later period, from the fourth century onwards. It is well known that for this period we have a considerable amount of copper alloy coins, found mainly in Sri Lanka. Along with proper Roman coins, large numbers of imitations of fractional currency are present. They are all imitations of Roman *nummi*, or *folles*, and this has often been used as a proof that trade between the Late Roman Empire and India was still flourishing.⁶⁴ A recent re-examination of the available evidence from Sri Lanka has led Walburg to reassess the actual amount and significance of the Late Roman coins and their imitations found in the region. As he pointed out, even with a very optimistic calculation, including in the corpus many dubious specimens, we could work out a total of around 35,000 copper alloy coins found in Sri Lanka, of Roman provenance. As large as this number may seem, this would mean a value of merely 5 to 9 *solidi*, depending on the actual size of the coins, and a total weight of around between 40 and 90 kg, again depending on the size of the coins.⁶⁵ Walburg is certainly right to underline the modest purchase value of those specimens, and therefore deny them any value as a proof of flourishing commerce between the Late Roman Empire and India. Still, this would mean that the presence of such denominations in Sri Lanka has to be explained otherwise. The most tempting hypothesis would be to postulate that those coins were used as fractional currency for everyday purchases by Western traders and/or the local people. While intriguing, such a hypothesis needs further review.

Although the analysis of Roman coins in India raises perhaps as many questions as it answers, what is clear is that our analysis needs to consider the effects of deliberate selection of coins for export, resulting in a chronological offset between the coinage circulating in the Empire and that exported to India; and to assess separately the face values, and not just the quantities, of the different kinds of gold, silver, and copper alloy coins found in India.

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in the fact that they help us to reconstruct the functioning of the Roman economic system, rather than indicating chronological fluctuations in the international trade. See also Cobb (2015b).

⁶⁴ See, e.g. Salles (1999: 512).

⁶⁵ Walburg (2008: 54–5).

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The Port of Qana', a Junction between the Indian Ocean and the Mediterranean Sea

Barbara Davidde

INTRODUCTION

This contribution reflects on the political situation in Yemen during Roman imperial times through the analysis of historical and numismatic evidence, as well as the evidence from underwater archaeological survey. After a summary of the political situation of the South Arabian kingdoms in this historical period, and of what their numismatic issues indicate about their relations with Rome and the development of maritime trade, it focuses on the harbours and mooring places situated along the Yemenite coast, in particular the harbour of Qana', and the ceramic evidence for its trading relations with other regions, especially the Roman Mediterranean.¹

POLITICAL AND TRADING RELATIONS IN THE ICONOGRAPHY OF ARABIAN COIN TYPES

From ancient authors we learn that South Arabian kingdoms—Saba', Ma'in, Qatabân, Ḥaḍramawt, and, later, Ḥimyar—based their wealth and power on agriculture and on the export of incense and other aromatics so much appreciated in the ancient world (Fig. 18.1). These authors also provide

¹ The data I publish in this chapter are a synthesis of the papers published with Roberto Petriaggi between 1996 and 2005 and David Williams in 2004. For previous bibliography, see Davidde (1997); Davidde and Petriaggi (1998; 2000a; b; 2005); Davidde, Petriaggi, and Williams (2004).

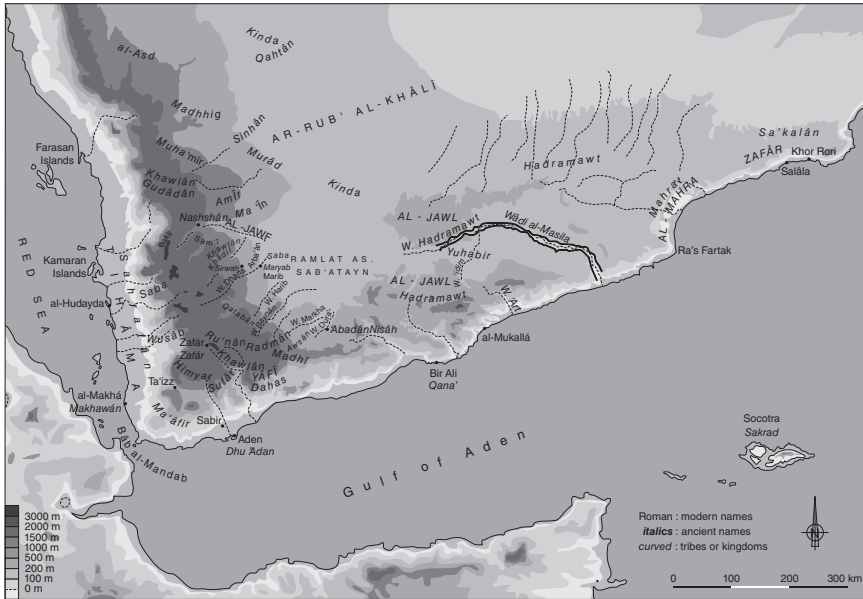


Fig. 18.1. Map of the South Arabian Peninsula in antiquity (after De Maigret and Antonini 2000: 42)

information about the caravan routes that left from the southern coast of the Arabian Peninsula and crossed it for its entire length to reach the Eastern Mediterranean ports and the maritime routes that connected these kingdoms with Egypt, Palestine, Syria, and India (Fig. 18.2).²

At the end of the first century BC and in the first century AD the kingdoms of Arabia Felix came into close contact with the Roman world, as shown by recent historical studies and archaeological excavations that have drawn attention especially to the goods exchanged, and by issues of South Arabian

² Herodotus, *Historiae* 3.97; 3.107–13; Strabo, *Geographia* 1.2.32; 16.4.2; 16.4.19, 25, 767–9, 780–2; 17. 819; *Res Gestae*, 18–23–26; *Periplus Maris Erythraei* 21, 23, 24, 25, 26, 27, 28, 31, 32, 35, 54, 57, 65; Pliny, *NH* 6.154, 161.101, 162; 12.52, 66, 69, 81, 88. In South Arabian sources, no references to maritime trade are attested for the kingdom of Saba', Qatabân, and Ḥaḍramawt; only the kingdom of Ma'in (seventh century BC–AD 120) has produced inscriptions with clear references to maritime trade (*RES* 3427, *RES* 3570). For Minean inscriptions, see Robin (1991). The term *bḥr* ('sea') is used commonly in epigraphy generally in geographical descriptions of the territory (the north and the south, the sea and the land, the west or the east); other instances refer to sea battles (e.g. *RES* 3495), or a pursuit that ended in the sea (*CIH* 407), or the construction of a wall to protect the country from attacks coming from the sea (*RES* 2867; see n. 21). Sea journeys are mentioned in some inscriptions referring to Sabaeen colonies or domains in Africa, or else during the descriptions of Ḥimyarite military campaigns against Abyssinia (*Ry* 508 in Ryckmans (1953: pl. IV) and *Ja* 1028 in Jamme (1966: figs 13–15; pls X–XIII) or referring to the activities of Ḥimyarite or foreign ambassadors. I am grateful to Christian Robin for helpful suggestions on South Arabian history and epigraphy.



Fig. 18.2. Maritime trade in South Arabia (De Maigret and Antonini 2000: 88)

coinage that are clearly influenced by Roman coin types.³ A very important event was the expedition commanded by Aelius Gallus, whom Augustus appointed to lead a campaign against Arabia Felix in 25–24 BC. Augustus intended to make Arabia Felix a protectorate or a subject state so as to subject its trade to Roman control and to secure the monopoly of the harbours along the route from Egypt to India.⁴ The military campaign, organized in total

³ See, e.g. Davidde and Petriaggi (2000b).

⁴ Sidebotham (1986). Strabo 16.4.22 is explicit on the commercial motive: 'τοῦτον [Gallus] δ' ἐπεμψεν ὁ Σεβαστὸς Καίσαρ διαπειρασόμενον τῶν ἐθνῶν καὶ τῶν τόπων τούτων τε καὶ τῶν Αἰθιοπικῶν, ὥρῳ τήν τε Τρωγλοδυτικὴν τὴν προσεχῆτῃ Αἰγύπτῳ γειτονεύουσιν αὐτοῖς, καὶ τὸν Ἀράβιον κόλπον στενὸν ὄντα τελέως τὸν διείργοντα ἀπὸ τῶν Τρωγλοδυτῶν τοὺς Ἀραβας· προσοικειοῦσθαι δὴ διενόηθη τούτους ἢ καταστρέφεισθαι· ἦν δέ τι καὶ τὸ πολυχρημάτους ἀκούειν ἐκ παντὸς χρόνου, πρὸς ἄργυρον καὶ χρυσὸν τὰ ἀρώματα διατιθεμένους καὶ τὴν πολυτελεστάτην λιθείαν, ἀναλίσκοντας τῶν λαμβανομένων τοῖς ἔξω μηδέν· ἦ γὰρ φίλοις ἤλαπιζε πλουσιόισι χρήσασθαι



Fig. 18.3. Sabaean coin, series with the portrait of Augustus
(mould from private collection; photo: Barbara Davidde)

ignorance of the climatic and physical conditions of the country, ended with the complete defeat of the Roman army.⁵ After these events, Roman trade by sea greatly increased compared to the land routes.⁶

What was the political situation in Arabia Felix in this period?⁷ At this time, the kingdom of Saba' continued to maintain its role among the South Arabian kingdoms, preferring in its economic and military approach the territories towards the highland. At the end of the first century BC and in the first half of the first century AD Roman influence on the economy of the kingdom of Saba' is shown by the Sabaean coin type with the portrait of Augustus (Fig. 18.3).⁸ On the obverse we find a portrait very similar to the Roman emperor Augustus and, to the right and left of it, a Sabaean letter. On the reverse an owl stands on an upturned amphora, between the symbols of the god 'Almaqah and two South Arabian monograms.⁹ This type was not minted for long, and relatively few examples are known; it was soon replaced by coins with an Arab head.

ἡ ἐχθρῶν κρατήσεν πλουσίῳ· ἐπῆρε δ' αὐτὸν καὶ ἡ παρὰ τῶν Ναβαταίων ἐλπίς φίλων ὄντων καὶ συμπράξιν ἅπανθ' ὑπισχνουμένων', contra Young (2001: 101–3).

⁵ Sidebotham (1986). Archaeological evidence for Gallus' campaign is the epitaph of Publius Cornelius, who died during the Roman siege of Baraqis, discovered near the temple of Nakran: Bowersock (1993).

⁶ For the presence of the Legio II from Egypt at the Farasan Islands in AD 144, see Villeneuve (2004).

⁷ From the *Periplus Maris Erythraei* and from South Arabian inscriptions and coins we are also informed about political changes in the Yemenite territory; see Robin (1995; 1996; 1997: 41–6).

⁸ Sedov and Davidde (1999); Davidde (2000).

⁹ The owl is a remnant of the influence of Athenian coinage, shown by previous issues minted by this kingdom with influences from the Athenian Old Style tetradrachm and later from the New Style tetradrachm: Davidde (1994).

At this period the kingdom of Qatabân started a slow decline, and the highland part of its territory seceded to form a new kingdom called either Ḥimyar or Dhū-Raydân. Indeed, at the beginning of the first century AD or a few years earlier, the Sabean king Dhamar'ali Watâr Yuhanim unified all the tribes of Saba' with those of the Yemenite highlands of Qatabânian origin by means of a confederation treaty, founding the dynasty of the kings of Saba' and Dhū-Raydân. In this period the Ḥimyarite kings of Saba' and Dhū-Raydân controlled the harbour of Mokha on the Red Sea,¹⁰ the harbour of Aden, although it was in decline, and the mooring place of Okêlis, previously controlled by Qatabanite tribes¹¹ and now by Ma'afir tribes, who were under the control of this Ḥimyarite dynasty.

In the second half of the first century AD the kingdoms of Saba', Qatabân, and Saba' and Dhū-Raydân all abandoned the Athenian or Roman models they had previously used to mint an original coin type with indigenous elements, although influenced by the Roman weight standard of the Neronian *denarius*. The kingdom of Saba' minted the series generally called the 'Bucranium series', although Sedov and I believe that it shows a head of an antelope. On the obverse is a beardless male head with a South Arabian hairstyle; in the left and right field the symbol of the god 'Almaqah. On the reverse is the protome of an antelope with lyre-shaped horns, as a symbol of the Sabaean god 'Attar, and the symbol of the Sabean god 'Almaqah in the left field. The weight of these coins is very irregular, ranging from 2.48 to 3.66 g. This type was minted and circulated until the middle of the third century AD.

The Kingdom of Qatabân coined the series called 'Double image' with two male heads, surely portraits of the king, on the obverse and on the reverse, the word *Harb*, the name of the royal Palace, in the exergue of the reverse, and pairs of monograms in the right and left fields.

The kingdom of Saba' and Dhū-Raydân also minted a series called 'Double image'. These issues, dating from the first to fourth centuries AD, carry on the obverse a male beardless head with South Arabian hairstyle, probably the king's portrait, sometimes with a monogram; the reverse shows a similar but smaller head, with *Raydân*, the name of the royal Ḥimyarite palace in the exergue, above this the name of the kingdom, and the symbol of the Ḥimyarite dynasty in the field.

The coinage of Ḥaḍramawt, a kingdom more heavily engaged in maritime trade, showed a very different iconography.¹² In the first century AD the coinage of this kingdom carried on the obverse a radiate head representing a

¹⁰ A Ḥimyarite inscription, *Ir* 28 para. 1 (dated between AD 300 and 383), tells us that Ḥimyarite ambassadors, after a visit to Abyssinia, returned home to the harbour of Mokha.

¹¹ Strabo 16.4.2 (from Eratosthenes); Pliny, *NH* 12.88.

¹² Sedov and Aydarus (1995).



Fig. 18.4. Ḥadrami coin, series with head/eagle

(photo: Sedov and Aydarus 1995: 20, fig.13)

solar or a lunar deity,¹³ and on the reverse a winged caduceus with the name of Saqir, the royal Ḥadrami palace, and a monogram, sometimes translated as Sumhuram. The caduceus, symbol of Greek Hermes or Roman Mercury, the god of trade in Greek and Roman mythology, may have been borrowed from Roman provincial coinage of the early imperial period. In the middle of the first century AD the Ḥadrami *mukarrib*¹⁴ Yashhur'il Yuhar'ish, son of Ablyata, minted a new coinage series. On the obverse we see a head with hair in ringlets and the inscription SYN, the supreme god of Ḥadramawt, and on the reverse an eagle with open wings, standing right and the name of the Ḥadrami ruler (abbreviated) on the left (Fig. 18.4). The eagle is the natural manifestation of the god Sayyn, as we can read in some Ḥadrami texts, but we can see the influence of Roman coins in the style of the eagle. The Russian archaeological excavations at the Ḥadrami port of Qana' have demonstrated the presence of these coins in strata dated to the early and middle second century AD.

¹³ Probably the Moon god Sayyn, the Ḥadrami supreme god.

¹⁴ *Mukarrib* is generally translated 'unifier'.

The analysis of the coinage in Arabia Felix and in particular the iconographic study of the coins show the close relationship of the South Arabian kingdoms with major international trading partners. Indeed, the first coin issues, dated from the end of the fourth century BC until the late first century BC, were influenced by the Athenian Old Style tetradrachm and later by the New Style tetradrachm, at that time coins of great prestige in the international arena. In this historical period the favorite trade routes were the caravan routes in the desert, along which stood the main South Arabian cities.¹⁵ After the campaign of Aelius Gallus, the caravan trade suffered to some degree from competition from Red Sea shipping, which, from the first century AD, began to sail through the Bab El-Mandeb Strait into the Indian Ocean taking advantage of the monsoons.¹⁶ The minting of the coins with the head of Augustus and the Ḥāḍrami coins with the eagle on the reverse obviously reflects the changes in political and economic interests caused by the presence of a new major trade partner, Rome.

PORTS OF THE YEMENITE COAST

As already noted, the kingdom of Ḥāḍramawt controlled the land routes and the sea route with the harbours of Qana' and Moscha,¹⁷ known as the ports of incense: ships departed from there for the long trip across the open sea to India. This kingdom also controlled the island of Socotra frequented by Indian, Greek, and South Arabian merchants.¹⁸

Moscha Limen/Khor Rori

The South Arabian harbour of Sumhuram, nowadays Khor Rori, is generally identified as the Moscha Limen of the *Periplus of the Erythraean Sea*. As shown by inscriptions found at the site, Sumhuram was an outpost of the kingdom of Ḥāḍramawt, founded for commercial and economical reasons far from the capital Shabwa, along the Omani coast (Fig. 18.5). While previous theories suggest a foundation in the first century AD, recent research conducted

¹⁵ The discovery in 1989 of a hoard of 181 Sabaeen silver coins of the 'Imitation Ancient Athenian Tetradrachm' type I, in the area of Bāḡil, buried at the end of the fourth century BC, was an important piece of evidence for the use of the east-west route, represented by the Wadi Sihām, connecting the coast with the interior of the country. See Davidde (1995).

¹⁶ The caravan routes continued to be utilized for a long time but experienced a process of increasing Bedouin control that would favour the development of the semi-nomadic tribes of Hejāz. For the use of the monsoons, see De Romanis (1996: 141–6).

¹⁷ See Avanzini (2008).

¹⁸ Robin and Gorea (2002).

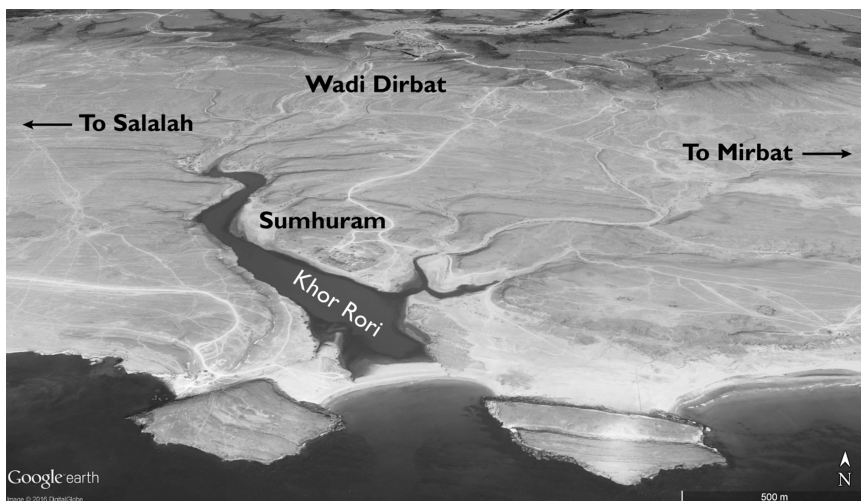


Fig. 18.5. Khor Rori

(Source: Google Earth. Image © 2016 DigitalGlobe)

by Alessandra Avanzini, director of the Italian Mission in Oman of the University of Pisa, has shown that the city already existed in the fourth century BC, through comparison with pottery from other sites (Raybun, Ḥaḍramawt) and ^{14}C analysis.¹⁹ Avanzini believes that these new data change our view of the city: not only was Sumhuram important for the trade of frankincense during the Roman period; it was also a wealthy settlement prior to that. This importance could be explained by considering the city as a crucial stopping place in the internal trade towards south-eastern Arabia and the northern coast of Oman, rich in copper. An underwater survey looking for archaeological evidence of a harbour conducted in Khor Rori in 1997 and 1998 off the mouth of the wadi between the Inqitat Taqah and the Inqitat Marbat did not produce results, perhaps because of the extensive silting-up of the bay. But in the light of our observations, it appears more likely that the port of Sumhuram did not have docks or breakwaters because it was sufficiently protected by its natural topographic and hydrographic situation. The port was probably a simple landing place on the side of the wadi, at the foot of the hill on which Sumhuram stands.²⁰

The harbour of Qana'/Kanê

In the years 1996 and 1998, together with my husband Roberto Petriaggi, I directed two underwater archaeological surveys along the coast of Qana', for

¹⁹ Avanzini (2008).

²⁰ Davidde and Petriaggi (1996).

the Italian Institute for Africa and East (ISIAO, Rome),²¹ to document the probable remains of the ancient harbour of *Kavî* or Qana' (nowadays B'ir 'Ali in the Republic of Yemen), founded in the first century BC.²²

Only a few South Arabian inscriptions provide any information about the importance and the history of Qana'.²³ Two inscriptions record that the army of the Sabaean king Sha'ar Awtar destroyed forty-seven ships moored in the bay of Qana' in the year AD 225.²⁴ Another inscription informs us that in July AD 360 some Yaz'anid princes from Wadi 'Abadan (Nisad) bought five equipped ships at the port of Qana'.²⁵ Since 1985 the urban site of Qana' has been excavated by a team of Russian²⁶ and more recently French scholars. The archaeological site, with domestic remains and storage areas (including warehouses for incense), is dominated by the rock called Husn-al Ghurab, with a fortress, some installations for water supply, and a building identified as a lighthouse.

A geomorphological survey, conducted by Michel Mouton, has revealed a new picture of the site. Qana' was originally a royal entrepôt in a fortress on a former island, separated from the mainland by a silted channel lined with a mangrove forest; gradually the town grew and spread around the northern bay. Sacred spaces, cemeteries, dwellings, and trade quarters appear to be well-defined areas (Fig. 18.6).²⁷ The period of occupation of the town is now divided by A. Sedov into a 'Lower Period', from the first century BC to the

²¹ Our project was kindly welcomed by the late Alessandro de Maigret within the activity of the Archaeological Mission in Yemen of the Italian Institute for Africa and the East.

²² *Kavî*, according to the *The Periplus Maris Erythraei*, or *Cane* according to Pliny, *NH* 6.104. The realization of this programme of research has been possible thanks to a general agreement with the General Organization of Antiquities Museums and Manuscripts of Sana'a' and the collaboration and support of Alexander Sedov (Institute of Oriental Studies—Academy of the Sciences of Moscow) and Michel Mouton (CNRS, Lyons). The project has been facilitated thanks to the support of several sponsors: Yemen Airlines (Rome), the International Scuba School (Bologna), Bandettini Constructions s.r.l. (Rome), Abeille Insurances (Verona), Oceanic Diving Equipment (Rome), and Filmgo Srl (Milan). The hospitality and support of the Italian Embassy at San'a' was crucial. Unfortunately, owing to the political situation in Yemen, especially after 11 September 2001, we were no longer able to obtain funding to continue the underwater research and, since 1998, we have been engaged in the study of materials and dissemination of scientific data. Previous bibliography on underwater surveys at Qana' is cited in n. 1.

²³ *RES* 2687, referring to the construction of a defensive wall 25 miles north of Qana' (now Al Binâ') by the king of Ḥaḍramawt to defend the kingdom from attacks from the sea; *CIH* 621, dated AD 531, after the conquest of Yemen by the Abyssinians, reports work carried out at Qana' to strengthen the walls, the gate, the cisterns, and the access road; and *CIH* 728.

²⁴ *Ry* 533/9: two types of ships destroyed are distinguished: little boats, indicated by the term *s³dq* (Arabic *sundūk*; Greek *σκάφη*) and seagoing ships, indicated by the term *flk* (Arabic *falūk*; Greek *φολκιον*) (*Ry* 533/9 in Ryckmans 1955). *Ir* 13/13: in this text the author uses two different terms to indicate the harbour of Qana': *hyq*, generally used to indicate a bay, and *mkdh*, a term that seems to have an institutional significance, used to indicate a place of exchange where the kingdom builds the ships and takes taxes (*Ir* 13/13 in al-Iryānī 1973; *Ry* 533/9 in Ryckmans 1974; Beeston 1976).

²⁵ 'Abadān 1/37: Robin and Gajda (1994).

²⁶ Sedov (1992; 1994; 1997).

²⁷ Mouton, Sanlaville, and Suire (2006; 2008).



Fig. 18.6. Reconstruction of the site of Qana' (Mouton, Sanlaville, and Suire 2006: 807)

first century AD, a 'Middle Period', from the end of the first century AD to the end of the fourth century AD, and an 'Upper Period', from the fifth century AD to the sixth or early seventh century AD.²⁸

In 1996, to look for possible submerged harbour structures, the first phase of underwater exploration concentrated on the coast in front of the incense storehouses. The seaboard between the northern bay and the southern bay of the Husn al-Ghurâb promontory (max. depth 8 m) did not produce archaeologically significant results. The southern bay, already described as mostly silted up in the reports written by English officers who visited the site in 1834 on board the ship *Palinurus*, was subsequently investigated, and these observations were confirmed.²⁹ No archaeological evidence was noted.

The second phase of survey investigated the northern bay of the ancient town, the bay of B'ir 'Alî. The first dive, to a depth of 8 m, about 100 m from the beach and 200 m from the western side of the incense storehouses,

²⁸ Mouton, Sanlaville, and Suire (2006: 787, n. 13).

²⁹ Wellsted (1837).

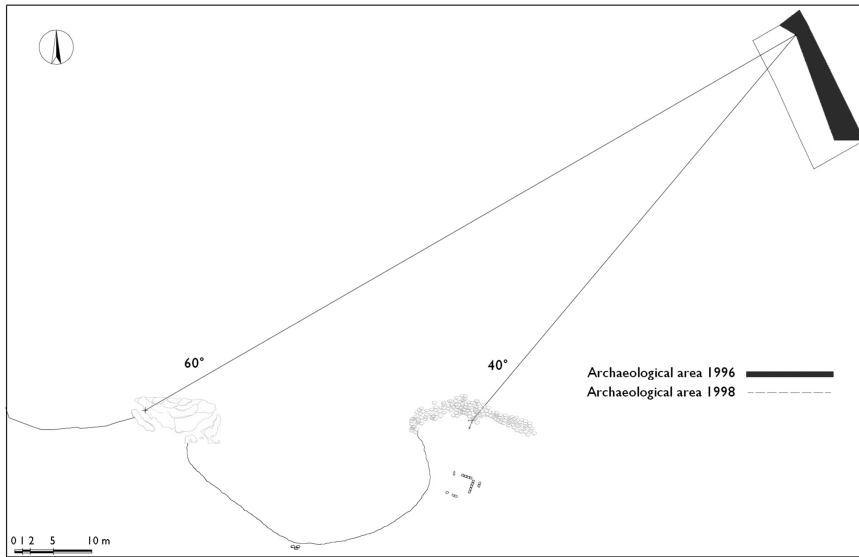


Fig. 18.7. Map showing the northern bay of Qana' and the area of the underwater archaeological survey

(drawing by Massimiliano Ena: after Davidde, Petriaggi, and Williams 2004: fig.1)

produced positive results from the outset (Fig. 18.7). The seabed, formed of coral, sand, and fossil shells, was littered with ceramic fragments, mostly amphorae, jars, vessels, and other ceramic objects. During the two campaigns, artefacts were found spread out over an area measuring about 1 km².

The discovery of several stone squared blocks, five of which were within the plotted area, was very useful for the identification of the area of the ancient anchorage. They are distinguished by a long groove in the middle of the body, made to fasten a rope around the stone. A stone anchor in the shape of a truncated pyramid and a fragment of stone anchor with a hole for the rope were also found (Figs 18.8–18.9). The squared blocks are rough and much too large to be identified as stone anchors, and they would have been inconvenient to be carried aboard ship. Similar blocks were discovered in the 1960s in southern France, near Agde.³⁰ They are a kind of seabed weight used as a mooring stone, placed on the bottom of the bay to give the merchant ships a better mooring. Once moored, the ships could be unloaded by lighters and the goods carried ashore to the warehouses. These seabed weights allow us to suppose that the harbour of Qana', although lacking built quays and docks, was nevertheless a well-organized mooring area.

³⁰ Fonquerle (1986: pls I–II).

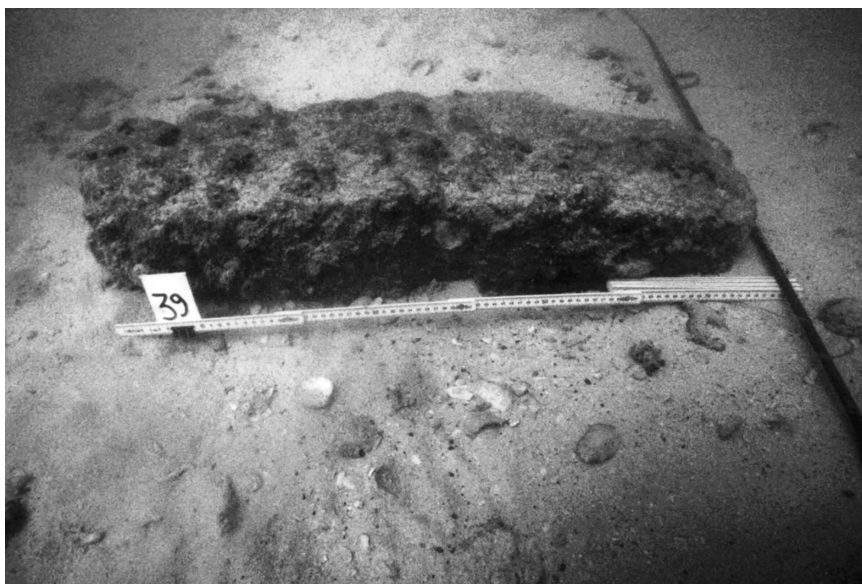


Fig. 18.8. Seabed weight used as mooring stone
(photo: Barbara Davidde)

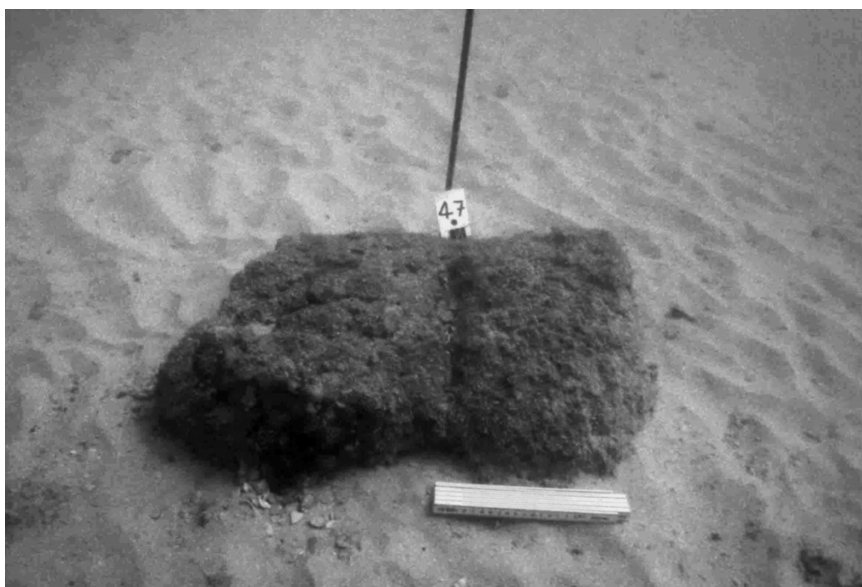


Fig. 18.9. Seabed weight used as mooring stone
(photo: Barbara Davidde)

CERAMIC EVIDENCE FOR TRADING CONNECTIONS

The ceramic material discovered underwater at Qana' confirms the results of the Russian excavations on land and extends our knowledge about maritime trade. Most of the pottery consists of different types of Mediterranean amphorae, together with other finds, such as a dish of Italian terra sigillata,³¹ and several fragments of coarse ware from Nubia, Egypt, and India. From the c.300 items recovered, 73 sample chips of pottery were submitted for fabric analysis by thin sectioning and study under the petrological microscope by D. F. Williams, Southampton University.³²

Our studies and petrological analysis indicate that about 39 per cent of the Dressel 2-4 wine amphorae came from Italy, mainly Campania (Pompeii and

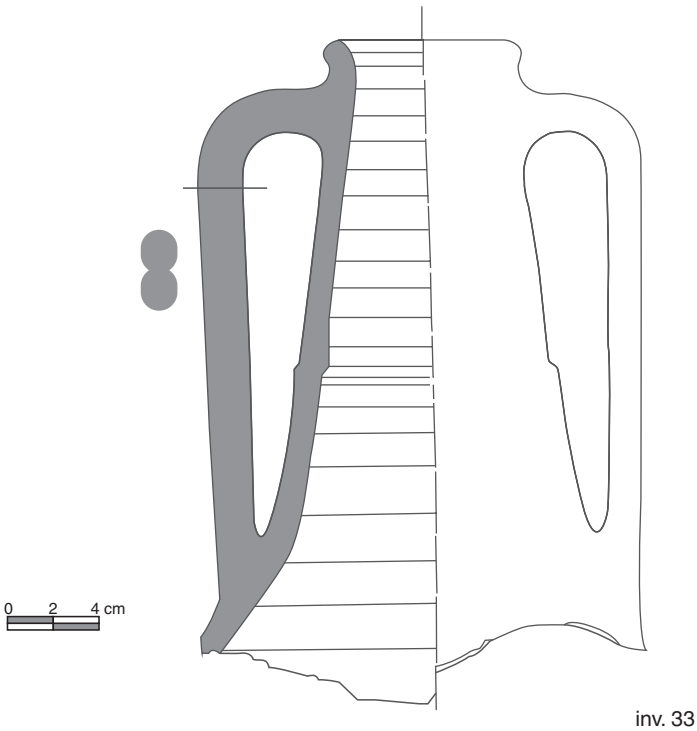


Fig. 18.10. Dressel 2-4 amphora made in Laodicea, inv. no. 33
(drawing: Marco Sangiorgio)

³¹ *Atlante II*, p. 383 Tav. CXIX ff., form X, n.12.

³² Davide, Petriaggi, and Williams (2004).

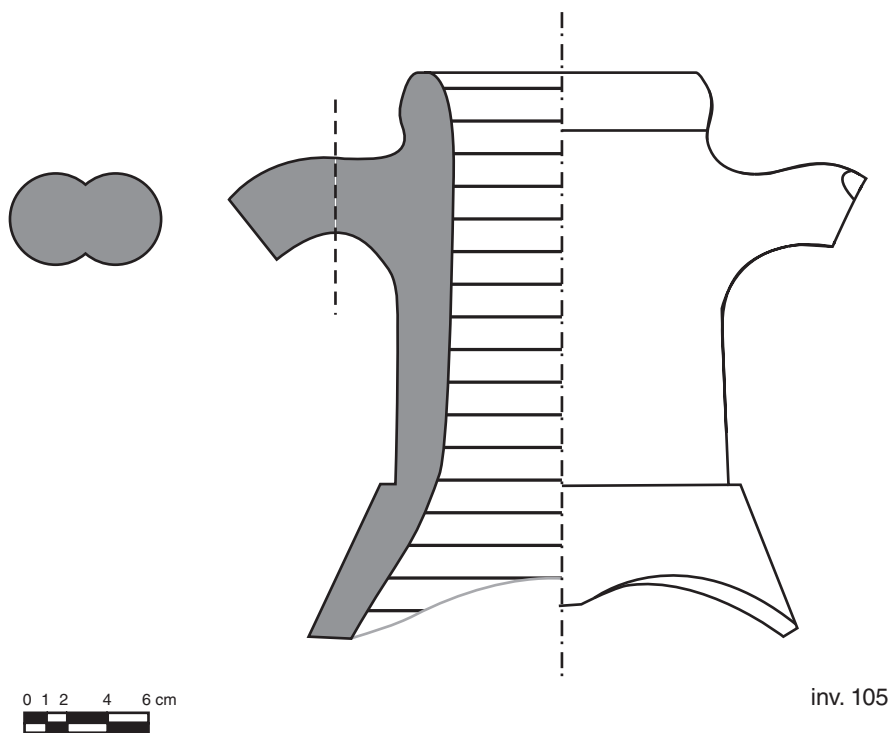


Fig. 18.11. Dressel 2-4 amphora made in Laodicea, inv. no. 105
(drawing: Massimiliano Ena)

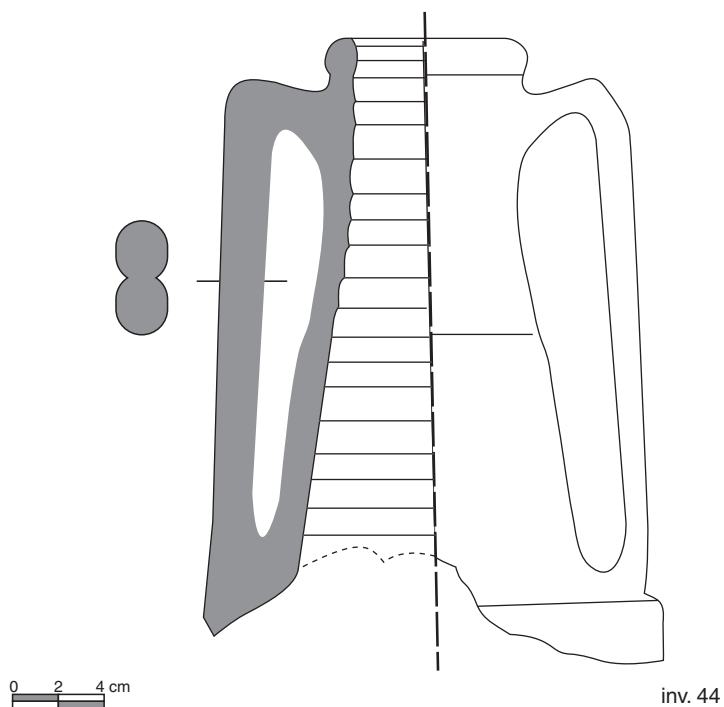


Fig. 18.12. Dressel 2-4 amphora made in Laodicea, inv. no. 44
(drawing: Marco Sangiorgio)

Herculaneum); c.28 per cent of the Dressel 2–4s are similar in the shape to the Dressel 2–4 amphorae made in Egypt in the third–fourth centuries AD,³³ but petrological analysis shows that the fabric is the same as the Late Roman 1 amphora, produced along the coastal strip of Cilicia/northern Syria, ancient Laodicea.³⁴ This is not the first time that a Dressel 2–4 type has been proposed to be Laodicean—the identification has been proved by analysis of the finds from Mons Claudianus in Egypt³⁵—but it is the first time that this type of amphora has been recognized in Yemen (Figs 18.10–18.12). Laodicean wine is known to have reached Egypt and is mentioned in the *Periplus Maris Erythraei* and in the Nicanor Archive as one of the items of trade carried to the Indian market.³⁶ The discovery of Laodicean amphorae at Qana' thus makes sense within this context.

A mere c.3 per cent of the Dressel 2–4 amphorae at Qana' originate in Spain (Tarraconensis). For another c.28 per cent of Dressel 2–4 body sherds, it is difficult to establish a certain origin on the basis of petrological and morphological evidence. The petrology suggests an origin in a volcanic region somewhere in the eastern Mediterranean. A particularly remarkable find is the neck of a Dressel 24 amphora from the Black Sea region.³⁷ Five amphorae are very similar in typology to the Gauloise 4 amphorae, and we have classified these as Gauloise 4 *similis* or Pélichet 47;³⁸ one amphora neck looks like a Dressel 43 from Crete, but the petrological analysis does not match Cretan sources, so we propose an Eastern Aegean origin. The provenance of some of the oil lamps and some jars confirm trading contacts with Nubia and India,³⁹ and there is also an oinochoe from Berenike. We distinguished also amphorae and jars in a distinctive pottery fabric made from the alluvial clays of the Nile and Delta regions of Egypt.

CONCLUSION

The ceramic materials discovered underwater in the bay of B'ir 'Ali date between the first and the end of the sixth century AD, with a higher percentage before the fourth century AD. Our typological and petrological study suggests more clearly the dynamics of the trade between Qana', the Mediterranean regions, and India. The presence of Laodicean amphorae, containers of Laodicean red wine, is of particular interest, in addition to high percentages of

³³ Empereur (1986).

³⁴ Williams notes that this is a reasonably distinctive fabric and is commonly associated with the late Roman amphora form LR1: Davidde, Petriaggi, and Williams (2004).

³⁵ Tomber (1996). ³⁶ Fuks (1951); Rathbone (1983).

³⁷ I thank Clementina Panella for this suggestion.

³⁸ Davidde and Petriaggi (1998: 40; 2000a: 171–5).

³⁹ See Rao (1966).

Campanian amphorae, possible containers of Aminaean wine.⁴⁰ As the excavation of the city of Qana' has shown, the commercial trade also involved goods originating in Gaul, Spain, and the North African Provinces. The coarse ware attests strong trading links with India and Egypt; the high proportions of wares from these regions are probably influenced by the origin of the crews.

Qana' according to the *Periplus* was the collection point for frankincense, which was brought from the interior by camel and along the coast by boats; aloe was said to be another of its exports. This harbour was frequented by Mediterranean merchants, their shipping mates, and their agents, together with Palmyrenes and Indians at coastal and hinterland venues,⁴¹ and in the Upper period by Axumites, indicating a change in the areas of influence with more trade directed towards the African coast. As such, much of the Mediterranean material may represent the favourite goods traded to South Arabia in return for incense. But the harbour of Qana' was also an entrepôt through which Mediterranean goods passed on their way to India, and Indian goods on the way to the Mediterranean, changing hands between different groups of merchants each doing part of the route, as described by the classical authors. It might be supposed that this coastal trade via Qana' along the Red Sea, Arabian Peninsula, and Persian Gulf related more directly to north-western India, and that the direct monsoon traffic to southern India bypassed Qana', but more work is needed at sites in both India and the Arabian Peninsula to explore this hypothesis. For the moment, though, the Roman finds at Qana' serve to emphasize the close involvement of the Arabian Peninsula in the web of trade routes that connected the Roman world via the Red Sea with India, and the Persian Gulf—and thus they add texture to the picture of trading links and economic influence implied by the borrowing of Roman iconographic models and weight standards in the coinage of the South Arabian kingdoms.

ABBREVIATIONS

<i>Atlante</i>	<i>Enciclopedia dell'arte antica, classiche e orientale: Atlante delle forme Ceramiche</i> (Rome, 1985)
<i>CIH</i>	<i>Corpus Inscriptionum Semiticarum, ab Academia Inscriptionum et Litterarum Humaniorum conditum atque digestum, Pars quarta: Inscriptiones Himyariticas et Sabaeas continens</i> , i–iii (Paris, 1899–1930)
<i>RES</i>	<i>Répertoire d'Épigraphique Sémitique</i> (Paris)

⁴⁰ Davidde and Petriaggi (2005); for a mention of *vinum Aminaeanum* in some inscriptions of Dressel 3 *similis* amphorae (a variety of the Dressel 2–4 type) from the Castro Pretorio in Rome, see *CIL* XV.4534 and 4535; Tchernia (1986: 276–9; 350–3).

⁴¹ For the Indian Ocean network, see Ray (2003).

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Trade across Rome's Southern Frontier

The Sahara and the Garamantes

Andrew Wilson

INTRODUCTION

This chapter explores the interplay between political and military events and the evolution of trade between the Sahara and Roman territory in North Africa. It looks at the development of Saharan trade in antiquity, the relations between Roman frontier systems and the control of trade routes, and the fluctuations in intensity of trade over time, and considers the extent to which the Roman state may have been interested in customs duties from Saharan trade.

MODELS OF SAHARAN TRADE

For most of the twentieth century, trans-Saharan trade in antiquity was assumed to have been of very minor importance. In the wake of publications in the late 1930s and 1940s of Roman finds in tombs in the Fazzan, there was a brief period in the 1950s when some scholars conjured up a picture of a vibrant trans-Saharan trade controlled by the Garamantes of the Libyan Sahara,¹ but scepticism quickly asserted itself and downplayed this as an occasional luxury traffic in exotic animal skins, ivory, and wild beasts, but not an important trade in either slaves or gold.² The idea of minimal trade in antiquity was contrasted with the regular passage of trans-Saharan caravans in the medieval period, a traffic whose significance was thought only really to

¹ Wheeler (1954: 95–107); Lhote (1955); Carpenter (1956).

² Rostovtzeff (1957: 335–9); Law (1967); Swanson (1975); Salama (1981); Milburn (1985a: 283; 1985b); Mattingly (1995: 155–7).

have started after the Islamic conquest of North Africa.³ It has been argued that trans-Saharan trade began in the ninth century as a product of the market demand of the Islamic Mediterranean and was enabled largely by Islamic institutions, including faith networks that built relations of trust, and Koranic education, which spread literacy and thus facilitated trading at a distance by means of contracts, accounts, and credit notes.⁴ This thinking is based in large part on the fact that almost no Roman material has been found south of the Sahara; and it has been dramatically overturned by a growing body of evidence within the Sahara discovered between the late 1990s and 2011 when fieldwork in southern Libya became impossible. Two major field projects have brought about this change: the Italian archaeological mission directed by Mario Liverani and then by Savino di Lernia around Ghat and Aghram Nadharif in the Wadi Tan ezzuft in southern Libya; and a series of projects directed by David Mattingly in the Fazzan—the Fazzan Project, Desert Migrations Project, and Peopling the Desert Project.⁵ The more recent analyses, informed by these fieldwork projects, argue for a significant trade into and across the Sahara in the Roman period, a trade in which the Garamantes of southern Libya were pivotal.⁶

At sites throughout the Fazzan, the region of southern Libya inhabited in antiquity by the people known to us through classical authors as the Garamantes (Fig. 19.1), excavation and field survey have revealed surprising quantities of imported Roman material, not only deposited as grave goods but also present in quantity on the surface at the many settlement sites identified in field survey work (Fig. 19.2). The imports include amphorae, fine pottery, lamps, glass, and gems, and both the numbers of sites, and the quantities of material found at individual sites, indicate a large-scale traffic in goods in the first half of the first millennium AD.⁷ Roman material has been reported from over 170 sites in the Wadi al-Ajal (central Fazzan) alone—64 occupation sites and 106 cemeteries—and from 39 sites (23 settlements and 16 cemeteries) in southern Fazzan, where much less fieldwork has been done.⁸ A single second-century AD tomb in the cemetery at Watwat, near Jarma in the Wadi al-Ajal, yielded seventeen glass vessels.⁹ With the material goods came ideas and

³ Bovill (1968); Levtzion (1973: 124–6); Bulliet (1975: 138); Cahen (1981); Thiry (1995: 449–54); Brett (2006); Wright (2007: 12–17); Lydon (2009: 9–10, 52–9); cf. Botte (2011: 27).

⁴ Lydon (2009: 9–10, 52–9).

⁵ Wadi Tan ezzuft/Ghat: Liverani (2000a; b; 2005a). Fazzan Project, final reports: Mattingly (2003a; 2007); Mattingly, Daniels, et al. (2010); Mattingly et al. (2013). Desert Migrations Project: reports annually in *Libyan Studies* from 2007 to 2013.

⁶ Liverani (2005b); Mattingly and Wilson (2010); Fentress (2011); Mattingly (2011; 2013); Schörle (2012); Wilson (2012).

⁷ Mattingly (2003a: 355–62; 2007; 2011); Liverani (2005b); Mattingly, Lahr, and Wilson (2009: 121–8, 30); Mattingly and Wilson (2010); Duckworth, Mattingly, and Smith (2015).

⁸ See Mattingly (2011); Wilson (2012) for syntheses.

⁹ Mattingly, Lahr, and Wilson (2009: 128).

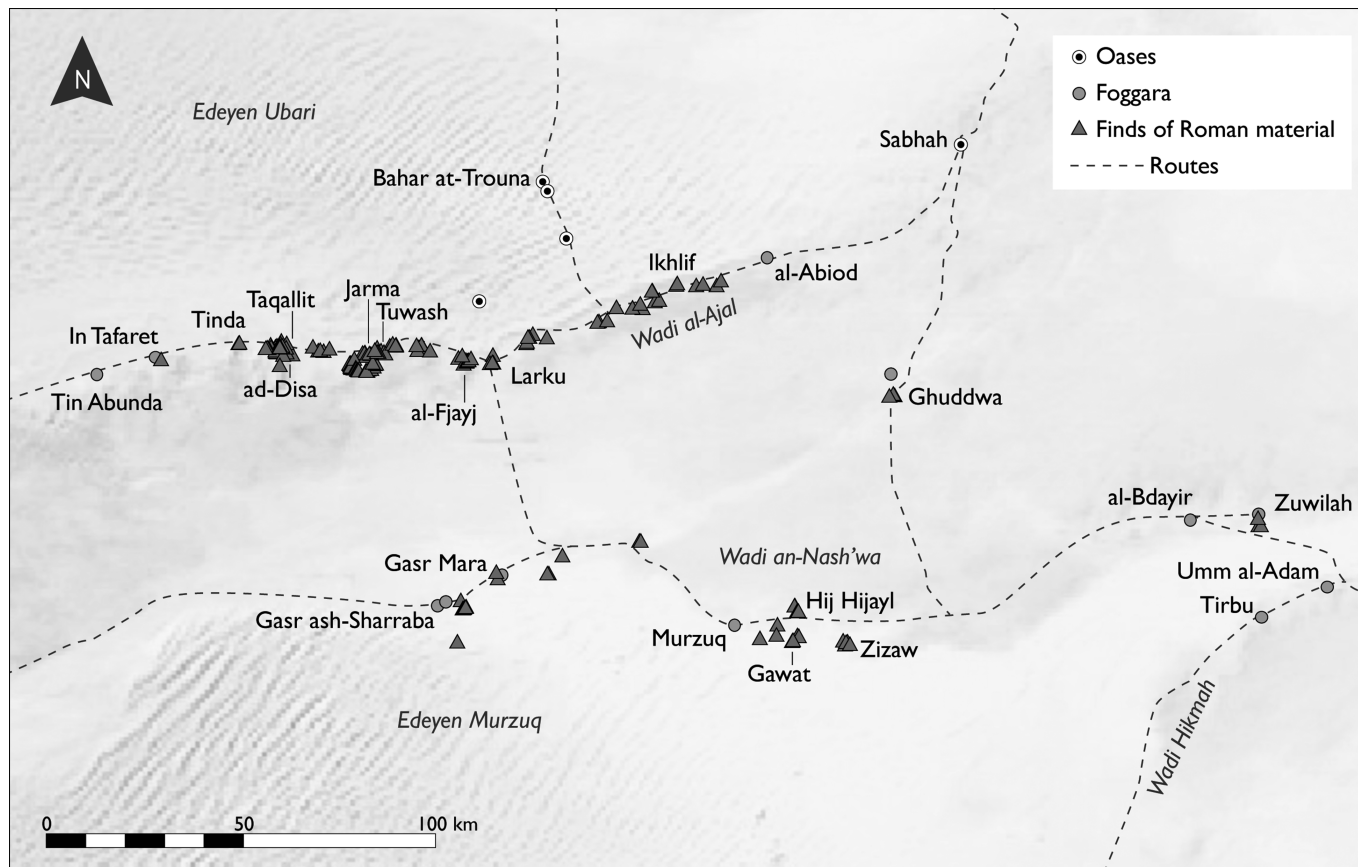


Fig. 19.2. The central Fazzan, showing sites where Roman material has been found. There was foggara-fed irrigation almost continuously along the length of the Wadi al-Ajal between In Tafaret and al-Abyad, but for the sake of clarity foggaras are shown only at the western and eastern extremities, Tin Abunda and In Tafaret, and al-Abyad

(A. Wilson/M. Anastasi)

technologies: mud brick and ashlar masonry, perhaps from Hellenistic Egypt or the Punic world in the later first millennium BC; and in the first century AD, rotary hand querns, Roman-style public baths, and wine presses, all from the Roman Mediterranean.¹⁰ The remarkable flourishing of the Garamantian agricultural civilization—which in the later centuries BC and early centuries AD included incipient urbanism at centres such as Qasr ash-Sharraba and the capital Jarma (ancient Garama),¹¹ as well as inscriptions in a version of the Libyan alphabet—was based on irrigation systems known in the region today as foggaras (essentially a north African word for qanats), subterranean irrigation systems that tap an aquifer in a piedmont zone and lead the water out to the surface lower down a slope by means of a tunnel dug between numerous pairs of vertical shafts. Hundreds of these systems have been traced in the Fazzan, and they enabled the production not only of an agricultural surplus, but also of cotton.¹² While the Garamantian heartlands were evidently the three major oasis depressions of the Fazzan, their area of influence clearly extended at times in the later centuries BC and the early centuries AD as far north as the Tripolitanian pre-desert.

In the Wadi Tanezzuft, to the south-west of Fazzan proper, excavations and survey by the Italian mission have added substantially to the corpus of Roman finds previously known. Roman pottery and glass have been found on a number of sites—the Kokaman necropolis at Ghat, the fortified village of Aghram Nadharif, a cemetery at Fewet, and ten other sites.¹³ The quantities of imports here are noticeably less than in the core Garamantian territory, and they cease earlier—few are later than the first century AD—but they are still considerable. Although the Italian mission sees the region as part of Garamantian territory, the chronological pattern of imports shows a considerable difference from the rest of Fazzan, and it may in fact be doubted whether the Wadi Tanezzuft, 400 km from the westernmost Garamantian settlement in the Wadi al-Ajal and showing a very different material culture in terms of settlement typology, quern use, and even pottery, was in fact Garamantian at all.¹⁴ Conceivably, the increase in trade between Rome and the Garamantes in the later first century AD may have diverted much traffic

¹⁰ Mattingly and Wilson (2010).

¹¹ Mattingly and Sterry (2013).

¹² Mattingly and Wilson (2003); Wilson and Mattingly (2003); Wilson (2005; 2006). Cotton: Drake et al. (2004: 106, 8–9); Pelling (2005: 402, 6–7; 2008: 58–9, 64–5; 2013: 475–7, 82, 87–8, 92–4). Direct AMS dates of the third/fourth century AD were obtained on cotton seeds from Jarma (Phase 6); occasional cotton remains were found in earlier levels, in Phases 10–7 (the phases are numbered in reverse). Although the excavators seem hesitant to ascribe these cotton finds to earlier phases, admitting the possibility of stratigraphic movement, the fact that foggarated irrigation seems to have been available from the fourth or third century BC makes an earlier date entirely conceivable.

¹³ Caputo (1949; 1951: 386–91); Fontana (1995); Castelli et al. (2005: 98–100); Cremaschi (2005: table 2.1); Felici (2005); Liverani (2005b: 446); Gatto (2010).

¹⁴ Wilson (2012: 438–9).

away from the routes leading through the Wadi Tanezzufe to routes via the Fazzan instead.

Whereas previous scholarship had argued from the lack of Roman finds in sub-Saharan Africa that pre-Islamic Saharan trade was insignificant and small-scale, the more recent fieldwork within the Sahara itself indicates instead a substantial degree of contact and trade between the Sahara and the Roman Empire, but organized very differently from medieval and early modern systems of trans-Saharan trade.¹⁵ Instead of being driven primarily by market demand on either side of the Sahara (and, in the medieval and early modern trade, particularly the northern end), a principal motor for this trade was the emergence within the Sahara itself of the Garamantian agricultural civilization, which produced a surplus in some goods and needed to trade with its neighbours for goods it lacked, and in time both generated a considerable demand for Roman goods and was able to supply Roman demand in particular items. While a part of the trade was truly trans-Saharan in the sense that some goods crossed the Sahara from one side to the other (usually from south to north), much of it was carried out by a series of interlocking subsystems of short- to medium-range trade, and the reason why Roman goods are scarcely found south of the Sahara is that the Garamantes imported them from the Mediterranean for their own use and consumption, but did not trade them on southwards; they were thus filtered out in the Fazzan.¹⁶

THE NATURE OF TRANS-SAHARAN TRAFFIC IN ANTIQUITY

The Roman goods that have been found in the Fazzan are the durable items that survive in the archaeological record—glassware, table pottery, and ceramic amphorae that had contained wine, olive oil, and fish products. Exports heading northwards, either from sub-Saharan Africa via the Garamantes, or products of the Fazzan itself, are harder to trace, as they were largely perishable and thus archaeologically invisible.¹⁷ Herodotus in the fifth century BC writes of the Garamantes raiding their southern neighbours for slaves, and Roman authors also talk of them trading northwards in slaves, and in carnelian gemstones, a trade that had evidently gone back to Punic times, as the Romans called carnelian the ‘Carthaginian stone’, having acquired it via trade with Carthage.¹⁸ Production waste of carnelian beads found at Jarma in levels

¹⁵ Wilson (2012).

¹⁶ Wilson (2012).

¹⁷ Wilson (2012: 423–7). This question is explored in more detail in Wilson (forthcoming).

¹⁸ Slaves: Herodotus IV.183; *Anthologia Latina* 1.183; Desanges (1964); Harper (2011: 87–8). Carnelian: Strabo 17.3.11, 17.3.19; Pliny *NH* 37.xxv.92, xxviii.100.

from the fourth century BC onwards confirms production within the Fazzan; finds within the Sahara also indicate that there was a wide regional trade in a green amazonite stone, even if this did not find much of a Mediterranean market.¹⁹

Other possible exports from the Garamantian Fazzan, not explicitly mentioned by ancient sources, include evaporite salts and natron. Around Twesh to the east of Jarma, the Garamantian capital, in the Wadi al-Ajal a series of rectangular foggara-fed features may have been salt pans for producing salt by evaporation and concentration.²⁰ To the north of Jarma, around the lake of Bahar et-Trouna in the Ubari sand sea, natron evaporites were collected and exported northwards in the nineteenth and twentieth centuries. It is entirely possible that they might have been similarly exploited in antiquity—the demand for natron in, for example, glass-making in the Roman period would have guaranteed a market, but research on natron isotopic signatures in ancient glass would be necessary to investigate this.²¹

We can also build a reasonable case from probability for some other exports. Excavations at Jarma have recovered finds of cotton that show that the Garamantes were certainly growing cotton by the first century BC, and cotton textiles, lightweight and commanding relatively high prices in the Mediterranean world, and thus with an advantageous value-to-weight ratio for overland desert trade, would seem to be an obvious export.²² In addition, the Garamantes were certainly producing grain and dates, and on the analogy of Saharan trade in later periods it is highly likely that surpluses in these goods were traded outside the areas in which they were grown, and probably both northwards and southwards. *Ostraca* from the third-century AD oasis fort at Bu Ngem in Libya record the arrival at the oasis of some Garamantes and their donkeys, in some cases carrying grain:²³ the Severan frontier forts and their surrounding settlements may themselves have been markets within this regional trade system.

The question of exports southwards from Fazzan is even more obscure and difficult to trace, not least because little fieldwork has been done along these routes. If by the Roman period the Garamantes had moved from raiding their southern neighbours to trading with them for slaves, then southward exports of dates and grain may be envisaged, as well as carnelian and amazonite beads; trade perhaps for salt picked up at the oases of Kavar on the Bornu route may also have played a role.

As for the goods going north, apart from (as we shall see) a reference to a rhinoceros (hardly a regular item of trade), gold and slaves are the obvious

¹⁹ Gliozzo et al. (2014). ²⁰ Wilson (2012: 425–6).

²¹ Wilson (2012: 425; forthcoming).

²² Drake et al. (2004: 106, 8–9); Pelling (2005: 402, 6–7; 2008: 58–9, 64–5).

²³ Marichal (1992: nos 71–2).

candidates, by analogy with the trade in more recent periods, and, in the case of slaves, on the basis of statements by ancient authors.²⁴ Whether or not there was a gold trade from sub-Saharan Africa before the ninth century AD remains a matter of debate.²⁵ Probably the most important component of the ancient Saharan trade was the human traffic, both for slave markets within the Fazzan and at the Roman end of the system. But the slave trade remains archaeologically almost invisible. I have argued elsewhere that the elements of market demand in the Roman Empire, the use of the dromedary, and the availability of water sources and infrastructural support within the Fazzan and on desert routes were in place to enable a slave trade in the second and third centuries AD that could quite conceivably have equalled in scale the trans-Saharan slave trade of the medieval and early modern periods. Whether it *actually* did so is impossible to prove; but a slave trade across the Sahara of 3,000–8,000 people per year (the estimates for the early modern period) is wholly plausible in terms of the Roman Empire's demand for slaves (estimated on the most conservative figures at 55,000–200,000 per year, met by a combination of trade and slave breeding within the Empire).²⁶ In addition to the Roman demand for slaves, there was also a substantial demand within the Garamantian territory, not least no doubt for the difficult and dangerous work on digging the foggara irrigation systems.²⁷ Lisa Fentress has suggested that the Garamantes may have used most of the adult slaves they traded from sub-Saharan Africa to work as agricultural labourers and foggara-diggers, and that the slaves traded onwards to the Roman Empire may have been predominantly children, who were in demand as exotic household slaves—many of the representations of black sub-Saharan Africans in classical and Roman art are of children.²⁸

BEGINNINGS

We should not imagine that the Sahara was a nearly insurmountable obstacle that was penetrated or crossed only after, for example, the Roman expedition of Cornelius Balbus against the Garamantes in 20 BC 'discovered' routes to the south. Certainly, the environment is exceptionally arid and harsh; but routes across and through it have always existed, and in the second millennium BC, although the Sahara was more arid than it had been in the era of big game, it

²⁴ See n. 18, and Fentress (2011).

²⁵ Garrard (1982); Kaegi (1984); Mrabet (1994); Wilson (2012: 435–7).

²⁶ Wilson (2012: 432–5). For conservative estimates of Roman slave demand, see Scheidel (2011); Harris (1980; 1999) argues for much larger figures.

²⁷ Wilson and Mattingly (2003: 275–7). ²⁸ Fentress (2011).

was still able to support pastoral communities that ranged widely across the landscape. Progressive aridification over the course of the first millennium BC paradoxically forced the population of the central Sahara to develop alternative strategies, developing oasis agriculture, at first with the aid of shaduf wells (a technology obtained from connections with Egypt), and later, after the mid-first millennium BC, with foggaras (also via Egypt). Artificial oases are not self-sufficient, but specialize to produce an agricultural surplus, and require trade links to dispose of that surplus in exchange for essentials and luxuries that they cannot produce themselves.²⁹ The crystallization of movement, and trade, along a number of set routes thus has to be seen as a combination of increasing constraints caused by progressive aridification since the Pastoral period, offset to a limited extent by the introduction of new means of transport—the dromedary—and by new technologies such as the foggara, which enabled the development of artificial oases along some of the routes.³⁰ It was *not* simply a result of Mediterranean ‘discovery’ of the Garamantes or the peoples who lay beyond them.

A principal axis, running approximately in a north-east/south-west direction from the Nile Valley through Fazzan to the Niger bend, was known to Herodotus already in the fifth century BC (Fig. 19.1).³¹ Behind his idealized account of stages each of ten days’ journey (interestingly, a common interval between watering points in the medieval caravan trade) between springs issuing from the top of a hill of salt (probably a schematization of artesian wells in oases of the northern Fazzan), the first part of the route can be identified reasonably securely. It ran from Thebes in the Nile Valley through the oases of the Western Desert and the Marmarica depression (Siwa, Jarabub, Jalo, and Augila), and then through the Jofra oases, to the Fazzan. Thereafter it is less clear, and there has been disagreement over whether beyond Fazzan he was describing what is now known as the ‘Bornu route’, southward from Fazzan through Tijirhi and the Kavar oasis (including the salt mines at Bilma) and the Bodele depression towards Lake Chad;³² or the route from Fazzan to Ghat and the Wadi Tanazzuft and thence over the Ahaggar mountains to Abalessa and then to the Niger Bend.³³ Although the ‘Bornu route’ was evidently used in the Garamantian period, as mud brick fortified settlements, or *gsur*, along the first part of it attest, most recent work accepts that the route to the Niger Bend is of great antiquity and that Herodotus was probably reflecting traders’ knowledge of that. As we shall see, there is certainly some scattered Roman-period evidence for movement along that route.

Herodotus also seems to know of the route from Fazzan northwards around the western end of the Ubari sand sea via Ghadames to western Tripolitania,

²⁹ Scheele (2010). ³⁰ Cf. Liverani (2000a; b).

³¹ *Histories* IV.181–5; Carpenter (1956); Law (1967); Liverani (2000a; b).

³² Carpenter (1956). ³³ Law (1967); Liverani (2000a; b).

for he mentions a thirty-day journey from the Garamantes to the land of the Lotus Eaters, on a promontory in the Lesser Syrtes: geographers later in antiquity placed the Lotus Eaters on or near Jerba, by the Zarzis promontory.³⁴ The terminus of this route would therefore be the cities of the western Tripolitanian coast, such as Gigthis, perhaps with a branch also north-east from Ghadames to Sabratha.³⁵ One would imagine that the easterly route from Fazzan via the Jofra oases (Hun, Waddan, and Sokna) northwards towards the coast and Lepcis Magna was also developed early on; this is implied also by Herodotus' story of the young Nasamones (a tribe inhabiting the pre-desert and desert margin in the gulf of Sirte and western Cyrenaica) who set off southwards to explore the desert and succeeded in crossing the Sahara, encountering pygmies who lived by a large river, with crocodiles in it, on the other side.³⁶

Although Herodotus provides clear evidence of early contact between the classical Mediterranean (or Egypt) and the Garamantes, the absence of classical pottery or other finds in the Sahara, or of Saharan artefacts or influences at classical sites in Cyrenaica and Punic sites in Tripolitania, suggests that in the fifth/fourth century BC there was little or no regular trade. Along these early routes there was perhaps more of a spread of ideas, and of trafficked humans, than of other goods: chariots, attested by the distribution of rock-art engravings (which do not indicate 'chariot routes' but do show the spread of an idea), and which were probably used in slave-raiding;³⁷ the shaduf well, used in early irrigated agriculture, and, in the later first millennium BC; foggara irrigation technology, which enabled the intensification of agriculture and the production of cotton; and ironworking, since iron tools were a prerequisite for digging foggaras.³⁸ The foggara irrigation technology appears to have reached the Fazzan from Egypt perhaps between the fifth and the third centuries BC; foggaras were used at 'Ayn Manawir in the Western Desert of Egypt around the mid fifth century BC, and a radiocarbon date from the mud brick lining of a Garamantian foggara in the Wadi al-Ajal falls between the beginning of the fourth and the end of the third centuries BC.³⁹

From the third or second century BC Punic pottery, and a few Italian Roman wine amphorae, traded presumably through Punic or Libyphoenician ports, began to reach Garamantian sites in the Wadi al-Ajal, but this material is not abundant. Its presence is consistent, though, with the implication by Pliny that the Garamantes were trading carnelian gemstones (*carbunculi*) northwards

³⁴ Herodotus IV.177 and 183.2; Strabo 1.2.17, following Polybius.

³⁵ Cf. Pliny, *NH* 5.35 for a later attestation of this route; Desanges (1978: 194).

³⁶ Herodotus II.32–33; Liverani (2000b).

³⁷ Mattingly, Reynolds, and Dore (2003: 345–6), contra Lhote (1960: 122–33); cf. Muzzolini (1990) for a dating between c.700 and 250 BC.

³⁸ Mattingly, al-Aghab, et al. (2010: 128–9).

³⁹ Wilson (2005); Wilson, Mattingly, and Sterry (forthcoming).

to Carthage.⁴⁰ The real increase in intensity of contact and the development of sustained trade routes seems not to have occurred, however, before the Roman period.

TRADE IN THE LATE FIRST CENTURY BC AND THE FIRST CENTURY AD

In 20 BC a Roman army under the command of Cornelius Balbus marched down to Fazzan and defeated the Garamantes in one or more engagements, capturing several of their strongholds. Balbus celebrated a triumph in Rome in March 19 BC, the last commander who was not a member of the imperial family to do so, and the campaign clearly lies behind Vergil's line in the *Aeneid* that Augustus will extend his dominion over both the Garamantes and the Indians.⁴¹ But, although his expedition was hailed at the time as a spectacular achievement, it seems to have been without lasting impact as far as trade was concerned. At any rate, we see no clear indication in the archaeological record of any increase in Roman imports to Fazzan in the Augustan period; and a generation later the Garamantes were assisting Tacfarinas and the Musulamii in their revolt against Rome in southern Africa Proconsularis. Finds from the cemetery of Sāniat bin Huwaydī near Jarma in Fazzan include occasional pottery of the first half of the first century AD, reflecting a trickle of trade in the Augustan and Julio-Claudian periods.⁴² Pliny, writing in the late AD 70s, describes the Garamantes as brigands, filling up the shallow wells on the routes across the desert to their territory, so that no one else can follow them.⁴³ While there was clearly contact at this period, and, as the finds in Fazzan show, some trade, there does not appear to have been a regular or intensive caravan trade before the late first century AD.

THE FLAVIAN PERIOD

The Year of the Four Emperors, however, ushered in the beginnings of a change that was to take effect immediately after Pliny wrote. While civil war played out across the Empire in AD 68/9 in the wake of the death of Nero, the

⁴⁰ See n. 18; cf. Gliozzo et al. (2014).

⁴¹ *Aeneid* 6. 794–5: *super et Garamantas et Indos / proferet imperium* ('he will extend his dominion over both the Garamantes and the Indians'). On the campaign, and a probably subsidiary action in Algeria, see Mattingly (1995: 114–15).

⁴² Mattingly and Wilson (2010: 529).

⁴³ Pliny, *NH* 5.38.

cities of Oea (Tripoli) and Lepcis Magna took advantage of the imperial confusion to settle a territorial dispute by having a minor local war. Oea, the smaller and less powerful of the two cities, called on the assistance of the Garamantes against Lepcis Magna—and the close relations implied between Oea and the Garamantes may reflect a trading connection. The Garamantes besieged Lepcis, until the siege was lifted by Valerius Festus, legate of Numidia. Festus pursued the Garamantes, discovering in the process a new and shorter route to Fazzan, the so-called route *praeter Caput Saxi*, ‘via the Head of the Rock’. This was probably the route from Oea/Tripoli, which led southwards via Mizda and Ghariat el-Gharbia to Brak in the Wadi ash-Shati in northern Fazzan.⁴⁴ Bovill argues that it was the introduction of the camel that made this route possible for the Romans without Garamantian assistance and knowledge of the locations of concealed water points (although camels had evidently been present in North Africa in the mid-first century BC, as Caesar captured twenty-two of them before the battle of Thapsus).⁴⁵ Certainly camels were in use in the Tripolitanian pre-desert in the second and third centuries AD, as reliefs at Ghirza show.⁴⁶

In the reign of Domitian, probably around AD 85/6, Gn. Suellius Flaccus, legate of the Third Augustan Legion, waged a punitive campaign against the Nasamones, the north-western neighbours of the Garamantes in the area between the gulf of Sirte and Augila, who had slain Roman tax collectors.⁴⁷ Ptolemy, drawing on Marinus of Tyre, refers to a military expedition by one Septimius Flaccus that must have occurred some time in the later first century, with an army against the Garamantes and then southwards from Fazzan for three months.⁴⁸ There has been uncertainty over whether the otherwise unattested Septimius Flaccus is a mistake for Suellius Flaccus, or was a different legate, but in either case the operation makes sense in the later first century, after the defeat of the Garamantes by Valerius Festus in 70.⁴⁹ Ptolemy again cites Marinus of Tyre to the effect that after Septimius Flaccus’ expedition one Julius Maternus travelled from Lepcis to Fazzan and then went further south with the Garamantian king, for four months’ march, to Agysimba in Aethiopia (Lake Chad?), where the rhinoceros congregate. There is nothing to indicate that this was a Roman military expedition—Maternus was probably

⁴⁴ Pliny, *NH* 5.38; Tacitus *Hist.* 4.50; Barth (1857: 131); Duveyrier (1864: 457); Bovill (1968: 34–5).

⁴⁵ *De Bello Africo* 68; Bovill (1956). It is difficult to know what precisely to make of this detail. Evidently it shows that camels were used in North Africa in the mid-first century BC; but does recording the capture of twenty-two camels as noteworthy imply that they were nevertheless rare? The capture of twenty-two horses would hardly merit a mention.

⁴⁶ Brogan (1954).

⁴⁷ Cassius Dio 67.4.6; Mattingly (1995: 117–19).

⁴⁸ Ptolemy, *Geography* I, 8.4. Cf. Berggren and Jones (2001: 67, 145–6).

⁴⁹ Mattingly (1995: 117–19) on both possibilities; Desanges (1964) argues for Septimius Flaccus and Suellius Flaccus being one and the same.



Fig. 19.3. Quadrans of Domitian, AD 83–5 (RIC 34, ex Evans: Heberden Coin Room, Ashmolean Museum). Obverse: rhinoceros *bicornis* advancing left; reverse: IMP DOMIT AVG GERM around SC

(photo: Ashmolean Museum, by permission)

therefore a trader, on an expedition to acquire slaves and other goods. Jehan Desanges proposed a link between Maternus' expedition and the appearance of a rhinoceros *bicornis* on Domitianic coinage from the mint of Rome (which he dated no more closely than AD 83–96), and particularly on a coin of Domitian struck at the Alexandrian mint in AD 92. He argued persuasively that the animal is the black rhinoceros, which is indeed found in arid environments, as opposed to the white rhinoceros of the Red Sea coast and east Africa, which had been known since the Hellenistic period.⁵⁰ Desanges therefore dated Maternus' expedition between AD 88 and 92, on the assumption that it followed Septimius Flaccus' expedition, and that that in turn followed the defeat of the Nasamones in 85/6. Buttrey (apparently unaware of Desanges's article) points out, however, that the rhinoceros coinage is a very common Domitianic *quadrans* issue that can be closely dated by the titulature to AD 83–5 (Fig. 19.3), and he uses this to date Martial's *Liber de spectaculis*, which mentions the rhinoceros at a set of games held in the Flavian Amphitheatre.⁵¹ But if, as Desanges believed, Maternus' expedition to 'Agisymba where the rhinoceros congregate' is to be linked to Domitian's display of a rhinoceros *bicornis* in the games and its commemoration on the coinage—and this seems overwhelmingly likely—then the date of Maternus' expedition must be in or before AD 83–5 rather than AD 88–92; and this in turn argues that Septimius Flaccus is not a confusion for Suellius Flaccus, but a different person whose expedition must be inserted in the chronology before the Nasamonian revolt. Desanges points out that Pliny, the preface to whose *Natural History* was completed in AD 77 or 78, would surely have mentioned Flaccus' and Maternus'

⁵⁰ Ptolemy, *Geography* I, 8.4; Desanges (1964).

⁵¹ Buttrey (2007).

expeditions had he been aware of them (he does mention the recent expedition of Valerius Festus in 69 or 70); we should therefore date these events after 77 or 78. To have led an army down to Fazzan, Septimius Flaccus should have been a *propraetorian* legate, but we know the names of the legates between 81 and 84 and he is not one of them.⁵² We can thus date his expedition between 77 and 81; and this would put Maternus' subsequent expedition between, say, 82 and 85, immediately before the striking of the Domitianic rhinoceros *quadrans* in 83–5 for the games at which the rhinoceros was displayed. We would now have the following chronology:

- | | |
|----------|--|
| AD 69 | Garamantes and Oea besiege Lepcis; Garamantes repelled by Roman troops. |
| AD 70 | Punitive campaign against Garamantes by Valerius Festus; Garamantes defeated. |
| AD 77–81 | Expedition of Septimius Flaccus to Garamantian territory and southwards beyond it. |
| AD 82–85 | Expedition of Julius Maternus (trader) to Garamantian territory and southwards to Agisymba with the Garamantian king; returns with rhinoceros. |
| AD 83–85 | Domitian exhibits rhinoceros in games at Rome; strikes rhinoceros <i>quadrans</i> issue; Martial writes <i>Liber de Spectaculis</i> . |
| AD 85–86 | Revolt of the Nasamones; campaign of Suellius Flaccus in Cyrenaica and Syrtica. |

This chronology suggests that, following Valerius Festus' defeat of the Garamantes, Roman interest in the Fazzan developed rapidly and that *Roman* traders became involved in long-distance trading expeditions by the early 80s. Certainly trade, whether involving Roman or Garamantian traders, or (probably) both, intensified: at the satellite settlement of Sâniat Jibrîl, just outside Jarma itself, the early levels contain appreciable quantities of pottery of AD 50–80 imported from Italy, while in the tombs of the first phase (late first/early second century AD) of the cemetery of Sâniat bin Huwaydî, 1.3 km to the ESE, the finewares are dominated by late Italian terra sigillata from the Pisa workshops, dated c. AD 50–80, and particularly dishes of Dragendorff form 18.⁵³ Some of these finewares appear to have come from batches of goods that arrived in the same caravan, as suggested by vessels from different tombs that bear

⁵² Desanges (1964: 713–14, 24). Desanges thinks that Suellius Flaccus, who was legate in 86/7, had already begun his command in 85, which seems probable; but even if he did not, there is hardly time in 85 for Septimius Flaccus to have held office earlier in that year, completed a three-month expedition, been followed by Julius Maternus on a four-month expedition, and for Maternus to have got a rhinoceros to Rome and for Domitian to have exhibited it, and struck the coins, by the end of 85.

⁵³ Mattingly, Hawthorne, and Daniels (2010a; b); Mattingly and Wilson (2010: 527, 9).

the same potters' stamps and merchants' marks in cursive Latin graffiti.⁵⁴ The imports in these late-first- to early second-century tombs also include Tripolitanian amphorae for oil, wine, and perhaps fish products; lamps; and glassware. Along with the goods came ideas and technologies: at precisely this time, in the late first century AD, the rotary quern appears in Fazzan, as do loom weights for the warp-weighted loom.⁵⁵ It is probably to this period also that we might ascribe one of the most extraordinary discoveries of the 1997–2001 excavations at Jarma: hypocaust tiles and fragments of box flue tiles evidently from a Roman-style bath, but made in Roman Tripolitania and carried down to the Fazzan.⁵⁶ (The building was demolished some time in the second century, as its elements were found in second-century levels.) While it is possible that the Garamantian king had commissioned the construction of a Roman bath, and that the components of its heating system were imported as part of the burgeoning trade, an alternative explanation is that the construction of a bath at the Garamantian capital might be seen in the context of Roman aid to a client king, as (on a larger scale) the provision of Roman architects, engineers, and materials for Herod's harbour at Caesarea Maritima and his palace at Jericho.⁵⁷ All this fits well with the rapprochement between Rome and the Garamantes, and a scenario of rapidly developing trade, that we can now place in the late 70s/early 80s.

It is surely significant also that the development of settlement and wadi-floor farming in the Tripolitanian pre-desert—the Wadis Sofeggin and Zem-zem, between the early imperial *limes* road along the Jebel and the oases of Gheriat el-Gharbia and Bu Ngem—also begins in the later first century AD.⁵⁸ The expeditions of Festus and Flaccus against the Garamantes had altered the balance of power in the region,⁵⁹ and conditions of evidently greater security both enabled the spread of agriculture into the pre-desert and reduced the risks and costs of trade.

THE SECOND AND THIRD CENTURIES

The second century appears to have marked the peak of Roman trade with the Garamantes. We know of no major conflicts in Tripolitania at the time; and second- and third-century pottery is plentiful in Fazzan, at the capital Garama,

⁵⁴ Mattingly, Hawthorne, and Daniels (2010b: 322); Mattingly and Wilson (2010: 529).

⁵⁵ Mattingly and Wilson (2010: 528).

⁵⁶ Mattingly (2003b: 165); Cole and Mattingly (2013: 466). A piece of marble veneer also seems to have belonged to this building.

⁵⁷ Roman concrete at Caesarea Maritima: Oleson and Branton (1992). *Opus reticulatum* construction in Herodian buildings: Roller (1998: 98–9).

⁵⁸ A point emphasized by Lloyd (1997: 363). ⁵⁹ Mattingly (1995: 71–2, 4).

in tombs, and widely distributed on habitation sites.⁶⁰ During the second century the frontier system may have been gradually expanded into the pre-desert—it has been suggested that the fort at Mizda, on the central route south from Oea to Fazzan, may be pre-Severan.⁶¹ If so, this southward movement of the frontier happened in the wake of the increasing settlement and cultivation of the pre-desert, rather than being its precondition.

Under Septimius Severus, however, there are renewed signs of trouble. The Severan frontier was reorganized with three forts built to control the main routes to the Fazzan: Ghadames in the west, Gheriat el-Gharbia on the central route (built AD 198–201), and Bu Ngem (where construction began in January AD 201) on the eastern route leading from Lepcis Magna down to the Jofra group of oases, Hun, Waddan, and Sokna.⁶² That this was something more than the consolidation of territory already settled and held is suggested by three inscriptions from Bu Ngem that make reference to vows for the safe return of a detachment of troops who had been away on campaign.⁶³ During the course of the third century, trade with Fazzan evidently continued, as the finds there show, but perhaps in conditions more punctuated by violence. The 220s appear to have been peaceful, at Bu Ngem at least.⁶⁴ But the fort at Gheriat was damaged in the 240s in a war (*bellum*), and repaired under Gordian III; around the same time, the *centenarium* (fortified post) of Gasr Duib was built in 244–6, as its building inscription tells us, to guard routes used by barbarian raiders from Phazania to the Gebel—*viam incursib(us) barba[ro]rum constituto novo centenatio... prae[cl]useru[nt]*.⁶⁵ The *ostraca* from Bu Ngem, dating from the late 250s, show a variety of cross-frontier activities: army patrols, the arrival of small parties of Garamantes and Egyptians with asses and mules bringing barley or other goods, and references to *camellarii* or *kamellarii* (cameleers) and their *statio* appear to reflect the role of the oasis as a major staging oasis at the northern end of the long stage of desert crossing down to the Wadi ash-Shatti, the most northerly of the Fazzanese oasis belts.⁶⁶ The cross-border relations implied by the *ostraca* appear peaceful and largely uneventful; but these are documents representing quotidian activities at a single site within a restricted span of a few years.

Somewhat after the middle of the third century the Severan frontier forts—or at least the two most westerly ones; little is known about Cidamus/Ghadames—were abandoned. At Bu Ngem the garrison was withdrawn

⁶⁰ Mattingly, Lahr, and Wilson (2009: 128); Mattingly and Wilson (2010: 529); Wilson (2012: 417–19); Leone, Dore, and Eckardt (2013: 380–3); cf. Mattingly (2013: 54).

⁶¹ Mattingly (1995: 126).

⁶² Goodchild (1954); Mattingly (1995: 130); AE 1976, 698.

⁶³ Rebuffat (1972: 122, 8–31). Rebuffat argues that the length of time the detachment was away from the fort, between 202 and late 205, indicates an extensive campaign in the desert to the south of Bu Ngem, probably in the Jofra oases and even further afield, perhaps into the Fazzan.

⁶⁴ Rebuffat (1995: 110).

⁶⁵ Mattingly (1995: 119, 22).

⁶⁶ Marichal (1992: 106–14, and *ostraca* nos 71–3 [arrivals], 76–8 [*kamellarii*]).

between AD 259 and 263, and moved to a new fort at *Talalati* (Ras al-Aïn Tlati), in the Gebel to the north. The *vicus* around the fort of Bu Ngem—in other words, the civilian settlement at the oasis—was occupied till at least the fourth century. At Gheriat el Gharbia, the numismatic evidence shows a gap between 275/80 and 360, leading Mackensen to suggest that the garrison was withdrawn around 275/80⁶⁷ (although the road leading north to Mizda has a milestone of c.275, suggesting a repair then). In 298, Maximian made two expeditions against the tribes of the northern Sahara—the Austuriani or the Laguatan.⁶⁸ The third century witnessed the beginning of disturbances in Tripolitania, which were exacerbated in the fourth century,⁶⁹ with the progressive expansion of the Austuriani out of oases in the northern Sahara, and probably particularly the Jofra group of oases, into the Tripolitanian pre-desert, which the Austuriani and the Laguatan increasingly came to control and to occupy and cultivate.⁷⁰

It appears very likely that there is a link between the withdrawal of the garrisons from the Tripolitanian frontier forts, increasing insecurity in the region, and the observed decrease in (but not cessation of) trade with the Fazzan. The relation of cause and effect, however, is unclear—were the troops withdrawn because they were needed elsewhere, in the troubles of the late third century, and then incursions increased as the border was poorly defended, disrupting trade? Or were raids from the peoples of the desert oases already a problem, causing Rome to withdraw the troops to a frontier it could hold more easily, without extending the forts' supply and communications lines far down the routes to Fazzan?

THE LATE ROMAN AND BYZANTINE PERIODS: FOURTH TO SEVENTH CENTURIES

Whatever the precise causative relation, after the third century, the volume of Roman imports to Fazzan declined sharply: ARS imports virtually ceased, although TRS and coarsewares from Tripolitania did continue to arrive, and imports from southern Tunisia (for example, Keay 62 amphorae), probably via the Ghadames route, and from the eastern Mediterranean via Egypt (for example, LRA 1 and high-quality eastern glassware) continue into the fifth, and a few into the sixth or even seventh centuries. The quantities are smaller, but the late glassware is of very high quality; if the trade had reduced in scale, it

⁶⁷ Mackensen (2011: 358; 2012: 44, 55); Mackensen and Schimmer (2015: 353).

⁶⁸ Corippus, *Iohannidos* I. 480–3; 5. 178–80; 7. 530–3; Mattingly (1995: 176); Syv  ne (2015: 87–8).

⁶⁹ Cf. Lloyd (1997: 362–3).

⁷⁰ Mod  ran (2003: 251–310).

was concentrated on high-value goods.⁷¹ This decline in trade—at least as reflected in the archaeological record—and the increased comparative importance of the routes between Egypt and Fazzan, and between Tunisia and Fazzan, at the expense of the more direct routes to Tripolitania, appears to be a development of the trends already visible in the third century. These were no doubt aggravated by the vicissitudes that the cities of Tripolitania are known to have undergone in the fourth century, notably the raids of the Austuriani in 363–7, which culminated in a siege of Lepcis Magna,⁷² and an earthquake that hit the Tripolitanian cities around the same time.⁷³ The Austuriani were still raiding Tripolitania in the early fifth century, as a dedication of between 408 and 423 by the inhabitants of Lepcis to one Flavius Ortygius, who is said to have ‘beaten back the fury of the Austuriani’.⁷⁴ Under the Vandals, before the Byzantine reconquest of North Africa in the 530s, Lepcis is said to have been abandoned as the Laguatan had overrun its territory.⁷⁵

The Austuriani and the Laguatan probably included the inhabitants of the Jofra oases,⁷⁶ where recent satellite interpretation work has indicated that there was also foggara-fed agriculture and, apparently, early urbanization at Hun and Waddan.⁷⁷ This provides grounds for seeing these as populous centres of the kind necessary to support the large numbers of tribesmen implied by the late Roman accounts—the *comes Africae* Romanus demanded 4,000 camels from Lepcis in order to march against the Austuriani in 365, and Corippus’ *Iohannidos* makes it clear that the Byzantine commander John Troglita was facing a very numerous force of the Laguatan alliance. Whether the cause was overpopulation, environmental change, or some other factor or combination of factors, the fourth- to sixth-century encroachment by desert tribes on the cultivated land of the pre-desert was not merely a matter of raiding, but a population migration or expansion involving the occupation and cultivation of wadi farming centres. It appears to have been part of a larger process across the northern Sahara at the time, a ‘Berber diaspora’ that saw the migration of desert tribes, the ‘Moors’ of the late Roman sources, into southern Byzacena (Tunisia) and Numidia, out of the Sahara and into and across the Aurès mountains, in the late fourth and the fifth centuries.⁷⁸

⁷¹ Cf. Hoffmann (2013: 416–19).

⁷² Amm. Marc. 28.6.

⁷³ Mattingly (1995: 182–5).

⁷⁴ IRT 480, with Reynolds (1977): *Austuriani furore raepressa*.

⁷⁵ Procopius, *Buildings* 6.4.6; Mattingly (1995: 185).

⁷⁶ Brogan (1975: 282); Wilson (2012: 437); Fentress and Wilson (2016: 58–9).

⁷⁷ Research by David Mattingly and Martin Sterry in the framework of the Trans-Saharan Project, and Louise Rayne in the Endangered Archaeology in the Middle East and North Africa Project: Rayne, Sheldrick, and Nikolaus (2017).

⁷⁸ Fentress and Wilson (2016).

WESTERN ROUTES

The foregoing has necessarily concentrated on Roman trading relations with the Fazzan, as this is the area that has produced the most data from recent fieldwork. More westerly routes, through the Algerian Sahara, have been much less explored, although a scattering of Roman finds here suggests contact and very probably some trade (Fig. 19.1). But besides the north–south routes between Tripolitania and the Fazzan, and the route north–west from Fazzan to Egypt, the route from Fazzan across the Ahaggar mountains down towards Jenné-jeno and the Niger Bend was evidently in use, as shown by a Latin inscription and finds of Roman coins near the well of Ti-n-missao.⁷⁹ Imitations of Roman amphorae have been identified at Tongo Maare Diabel in Mali and Tombouze 1 near Timbuktu, implying a familiarity with the packaging of Roman traded goods.⁸⁰ The Roman material from the fourth-century AD Tomb of Tin Hinan at Abalessa, close to this route, should be seen within this broader context of trans-Saharan contact and movement of Roman goods.⁸¹ Other stray finds of Roman material (coins or pottery) in the Algerian Sahara attest movement beyond the main routes identified so far and seem to hint at the development of a north–south route through the Algerian Sahara (Fig. 19.1).⁸² This idea is supported both by the fact that the Roman forts of the Algerian frontier evidently control the northern ends of the routes coming northwards from the Saharan oases,⁸³ and by the fact that the Touat and probably also the Gourara oases appear to have developed intensive foggara-fed agriculture at a very early date.⁸⁴ There are obvious potential similarities here between the Touat and the Garamantian centres in the Fazzan, and perhaps also with the foggara-fed agriculture of the Hun and Waddan oases.

SAHARAN TRADE AND THE ROMAN STATE

We have no direct evidence for the exaction of customs dues on trans-Saharan or Saharan trade (the customs tariff from Zarái in Numidia relates to trade

⁷⁹ AE 2003, 2037 = 1995, 1640 = 1990, 1028: *Tib(erius) Qui(n)tiniu(s)/Larnutinu(s) qui/cum Amase/mu[. . .]ntasa/mi lacum in[vestiga]vit(?)*; De Cola et al. (1990); De Cola and Pressier (1991); Rebuffat (2004: 253–7); Wilson (2012: 419).

⁸⁰ MacDonald (2011: 76).

⁸¹ Camps (1974); Orfali (1979: 259); Baistrocchi (1990).

⁸² El Oued, Ghourd el-Oucif, Hassi el-Hajar, and Fort Miribel; Salama (1981); Rebuffat (2004).

⁸³ Fentress and Wilson (2016: 57, fig. 3.11).

⁸⁴ Wilson (2005: 232–3; 2006: 214; 2009: 30–2). On ancient settlement in the Gourara and the Touat, see Échallier (1972; 1973).

between customs zones within the Empire),⁸⁵ but, on the analogy of the better-documented eastern trade through Palmyra or the Eastern Desert of Egypt,⁸⁶ it would seem very unlikely that no customs charges were levied. The customs duties across the eastern frontier were 25 per cent, and there are possible hints that this may have been a general rate across the external borders of the Empire—Strabo implies that the customs duties on trade with Britain in the Augustan period before it was conquered by Rome were substantially greater than inter-provincial duties.⁸⁷ Assuming, therefore, on the grounds of probability rather than of direct evidence, that customs dues were levied, how was this done? The obvious checkpoints would be the forts controlling entrance into Roman territory—in the Severan period, Ghadames, Gheriat el-Gharbia, and Bu Ngem for the Tripolitanian routes. But, as with the eastern trade via the Red Sea, it seems unlikely either that incoming merchants would have been carrying sufficient coins in Roman currency to pay any customs dues in cash, or that levying customs duties in cash at the frontier forts would have been a good idea, with all the risks of embezzlement, theft, and so on, that such a system entailed. Perhaps we should envisage something akin to the system at the Red Sea ports: a customs assessment made at the point of entry, generating documents that then accompanied the caravan to a town such as Gigthis, Oea, or Lepcis, at which the customs dues were actually levied, as a percentage in kind, not cash; and at which goods were then sold (at auction) by agents of the state in what was a large market specializing in the trans-Saharan trade. No documents relating to such customs assessments have been found among the *ostraca* of Bu Ngem, but that might be explicable if (a) the customs assessments were done not in the fort itself, but in the oasis where the caravans halted, perhaps at the *statio camellariorum* of the documents, and (b) the primary documents were sent on with the caravans to the coastal cities. Since we are not yet (and may never be) in a position to estimate the value of the trans-Saharan trade in antiquity, we can hardly assess the significance of the possible customs duties that derived from it. Undoubtedly both the volume and the value were less than that of the incoming trade via the Red Sea and Eastern Desert of Egypt; but at the same time we might now suspect, in the light of the fieldwork conducted in Fazzan, that it was more significant than, for example, trade across the Rhine frontier.

The intensity of Saharan and trans-Saharan trade fluctuated over time, affected by Rome's relations with its neighbours to the south, particularly the Garamantes, who were at the heart of much of the Saharan system. Once Rome was able to control the Tripolitanian pre-desert down to the oases of

⁸⁵ Troussset (2005).

⁸⁶ See Wilson (2015); Graf, Chapter 15, this volume; Tomber, Chapter 16, this volume; Nappo, Chapter 17, this volume.

⁸⁷ Strabo, *Geography* 2.5.8; 4.5.3; Wilson (2015: 22–3). For customs duties generally, see Bowman, Chapter 2, this volume, esp. pp. 37–40.

Bu Ngem and Gheriat el-Gharbia, and with peaceful relations with the Garamantes, trade reached its apogee; this may have been accompanied by some diplomatic assistance to the Garamantian king in the late first century and second century. But the rise of the Austuriani and the Laguatan in the oases of Augila and the Jofra group in the later third and the fourth centuries, and its destabilizing effect on the Tripolitanian pre-desert, disrupted trade along the north-south routes to the Garamantes, with a consequent greater focus on the routes through the Jofra and Augila to Egypt in late antiquity. While the state of diplomatic relations between Rome and the tribes of the central Sahara evidently conditioned the feasibility of trade, the level of state instigation or control of Saharan trade is less clear. Nevertheless, there are hints of a possible state or imperial stimulus to the beginning of the most intensive phase of trade (a military expedition, Domitian's rhinoceros, and possible technological aid to the Garamantian king). If the customs assessments paralleled the 25% tax levied on the eastern frontier, then it is easy to see why the Roman state may have been interested in the continuation of the trade; a possible model has been sketched for how the oasis forts might have overseen customs assessments at the frontier. This chapter has necessarily concentrated on the evidence from Fazzan and Tripolitania, as this is most plentiful as a result of the various fieldwork projects since the late 1990s. For the moment, there is no real evidence that Cyrenaica formed a significant terminus of Saharan trade in antiquity. Much more work remains to be done on the existence, scale, and nature of trade through the Algerian Sahara, but the distribution of occasional Roman finds and the indications of early foggara oases there make one suspect that a parallel story is to be told there; and, if so, the successive reorganizations of the Numidian frontier, with forts controlling the northern ends of key routes into the Sahara, are likely to reflect a significant part of that story.

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Index

Note: Numbers in italics refers to the figures

- Abalessa 607, 617
- Abamelik-Lazarov, General 505
- abies alba* 217
- Abu Mena 354
- Acanthon 191
- Accor 503
- accounts 28, 41, 43, 77–8, 96, 99, 103, 105, 137–8, 178, 194–5, 204, 318, 371, 449, 453, 460, 547, 558–9, 567, 600, 616
- Achaemenid Empire 501
- Achilles 474
- acorns 214
- Acre 266, 354, 370
- actio auctoritatis* 58
- actio exercitoria* 88–90
- actio Publiciana* 64, 69–70
- actio utilis* 80
- actiones adiecticiae qualitatis* 66, 86–7, 101, 119
- Ad Ianos 145
- adaeratio* 128
- Adda 222
- Aden 493, 583
- Adige 222
- Adriatic 220, 271, 276, 285, 360, 370, 373–4, 376–7
- aediles* 56, 120, 125, 218
- aedilician edicts 67, 90
 - actio quanti minoris* 67
 - actio redhibitoria* 67
 - de iumentis vendendis* 67
 - de Mancipii vendendis* 67
- Aegae 503
- Aegean 157, 231, 342, 355, 363–4, 367–8, 370–2, 376, 382–3, 386–7, 390, 434, 444, 446, 538, 593
- Aelia Isidora 199
- Aelia Olympias 199
- Aelius Aristides 1, 13
- Aelius Gallus 581, 585
- Aemelius, M. Aemelius Marcianus
 - Asclepiades 490
- Aemilius Scaurus 137, 146
- aerarium* 28, 31, 36–9, 148, 152, 155, 166, 169
- aerarium militare* 36
- Afghanistan 274, 468, 472–5, 492, 497, 504, 541
- Africa 1, 5, 11, 35, 40, 46, 59, 141, 156, 218–19, 221, 226, 230, 266, 271–2, 274–5, 277, 285, 327–9, 331–5, 337, 340, 344, 353, 370, 381, 383, 386–7, 428, 434, 437, 444, 496, 580, 587, 599–600, 604, 606, 609–11, 616
 - sub-Saharan Africa 604, 606
- Africa Proconsularis 333–4, 344, 370, 434, 437, 609
- African Red Slip ware, *see* pottery, African Red Slip
- Agde 589
- Agennius Urbicus 225
- ager Campanus* 153
- Agerius, Aulus Agerius 78
- Aghram Nadharif 600, 603
- agoranomoi* 125
- Agri Decumates* 310
- agricultural production 3, 384
- agriculture 3–4, 27, 54–5, 71, 91, 117, 226, 579, 607–8, 613, 616–17
 - surplus 4, 118, 190, 451, 603–4, 607
- agronomists 228–9
- Agysimba 610
- Ahaggar mountains 607, 617
- Ain Schkour 431
- Ainay 250
 - St Martin 250
- Aix 286, 288
- Ajaccio 268
- Ajaigadh 572
- Alabanda 161
- alabaster 252, 446
- Alandroal 283
- Alboran sea 428
- alder 228
- Alentejo 283
- Alexander the Great 501
- Alexandria 5, 14, 39, 43, 45, 56, 68, 118, 176, 178–9, 184–6, 188–90, 193–5, 199, 203, 211, 218, 220, 229, 266, 322, 338, 340, 342–3, 354, 360, 370, 375–6, 378, 380, 384–5, 387, 453–4, 475, 477, 479, 501, 537, 541–2, 548, 564
- Alexandros (merchant/explorer) 495
- Alexandros (Palmyrene envoy) 484
- Algeria 40, 328–9, 331, 609
- Algerian Sahara 617, 619
- allec* 11
- ‘Almaqah 582
- Almeria 436

- Almohad 428
 Almoravid 428
 Alps 222, 251, 255, 273, 285
 Amanus 230
 amazonite 605
 Ambrussum 287
 Amida 503
 Ammianus Marcellinus 447, 452, 481, 502–3
 Ammonius 183
 amphorae 6, 11, 67, 92, 241, 273, 291, 293,
 301–2, 315, 328–37, 339–44, 355–60,
 368–78, 380–7, 428, 431–7, 482, 531,
 536–8, 543–4, 549, 562, 582, 589,
 591–4, 600, 604, 608, 613, 615, 617
 ‘torpedo jar’ 548
 Aegean 355, 363–4, 368, 370–2, 376, 382,
 386–7, 434, 538, 593
 African 327–44, 367, 378, 382, 536, 606
 Africana I 332–3, 335, 434
 Africana II 332–3, 342, 435
 Agora G 198 368
 Agora G 199 357, 360, 374–5
 Agora M 125 376
 Agora M 334 360, 373, 384, 389
 Agora M 54 375
 Akko 266–7, 357, 369, 373, 376
 Almagro 51a 435
 Almagro 51c 435
 AM 14 360, 369, 371, 373, 384
 Beirut 356–8, 380
 Beltran II 329
 Beth Sh'an 355
 Black Sea 360, 368–73, 376–7, 383, 593
 Caesarean 195
 Calabrian 381
 Campanian 360, 367, 370, 377, 499,
 543, 594
 Camulodunum 184, 375, 434
 carrot 357, 369–70, 387
 Cilician 355, 357, 359–60, 367–71, 373–6,
 385–6
 Cretan 367, 370, 375, 377, 380–1, 386, 593
 Crimean 371–4, 376–7
 Dressel 1 437
 Dressel 18 432, 435, 437
 Dressel 20 241, 291, 301, 315, 332, 377,
 382, 431, 434, 437
 Dressel 23 381, 435
 Dressel 24 372, 376, 381, 593
 Dressel 3 *similis* 594
 Dressel 30 329, 333–4, 342, 359, 435, 537
 Dressel 43 593
 Ephesian 355, 376, 380, 388
 Gallic 367
garum 332, 370, 374, 432
 Gauloise 4 431, 434, 593
 Gauloise 4 *similis* 593
 Gazan 355, 357, 360, 365–6, 369, 371, 373,
 384–5, 389
 Greco-Italic 358, 437
 Iberian 377, 381 n. 61, 437
 Italian 273, 334, 370, 371, 381 n. 61,
 562, 608
 Keay 1 380
 Keay 1B 329, 382
 Keay 11 434
 Keay 25 333–5, 342, 380, 382
 Keay 35B 331, 333
 Keay 52 363–4, 381
 Keay 62 615
 Kingsholm 117, 357, 367, 369–70, 374
 Knidian 375
 Laodicean 374, 563, 593
 Lebanese 357, 361, 369, 373
 LRA 1 355–6, 365–6, 368, 371, 373–5,
 384–7, 389, 615
 LRA 13 386
 LRA 2 355–6, 386
 LRA 3 355–6, 365–6, 370, 372, 380
 LRA 4 355–7, 365–6, 389
 LRA 5 355–7, 360, 365–6, 369, 373,
 384, 389
 LRA 6 355
 MRA 3 371, 376, 380
 North Lebanese 357, 373
 North Palestinian 360, 370, 373–4
 olive oil 11, 241, 331–2, 334–5, 341–2, 360,
 372 n. 27, 373, 374, 376, 381–2, 385,
 431–2, 434–5, 437–8, 604, 613
 Palestinian 266–8, 271, 276, 278, 293, 355,
 360, 367–70, 373–4, 384, 386–7, 389
 Palestinian bag-shaped 360
 Pompeii 5 356–7, 359–60, 368–9, 371,
 373–6, 378, 386
 Portuguese 360, 371, 382
 reused 400, 497, 537
 Rhodian 372, 375, 482, 562
 Sala 284, 428, 430–2, 434–8
 Sinopean 372–4, 376–7, 382, 387
 south Phoenician 373, 384
 Spanish 332, 336, 339, 367–8, 370–1, 378,
 381–2
spatheia 382
 Stazione 48 del Piazzale delle
 Corporazione 329
 Suburbicarian 380
 Syrian 367–8, 385
 Tripolitana I 332–3
 Tripolitana III 333
 Tripolitanian 334, 341–2, 382, 613
 Tunisian 331, 333–4, 371, 372, 378,
 380–2, 537

- Tyrian 357, 369, 370, 373
 Volubilis 430–2, 438
 wine 11, 67, 192–3, 195, 334–5, 342, 360,
 367, 370–7, 380–5, 434, 437, 538, 543,
 562–4, 568, 591, 593–4, 604, 608, 613
 Zemer 57 375
 Ampurias 284
 Amrit 357, 360–3, 365–6, 369–72
 Ana 490–1
 Anazarbus 503
 anchor 191, 203, 293, 589; *see also* seabed
 weights
 Ancus Martius 224
 Andalusia 432
 Andhra Pradesh 544
 Andouros 562–3
 Andujar 434
 Anemurium 357, 369
 Angoka 469
 animal skins 599
 animals 178, 186, 189, 197, 202, 228, 243, 267,
 285, 293, 432–3, 437, 533
 Anio 229
 Annus Plocamus 495
annona 6, 11, 37, 43, 73, 90, 121–3, 126–7,
 177, 184, 189, 199–200, 340, 342, 353,
 376, 378, 381, 386–7, 428–9, 438
annona militaris 37, 199
 Anoubas 190–1
 Antaeopolite Nome 45, 192
 antelope 583
Anthologia Latina 604
 Antigone 89
 antimony 276, 559
 Antinoopolis 15, 58, 198, 539
 Antinum 230
 Antioch (Antiochia) in Pisidia 124
 Antioch (Antiochia) in Syria 118, 230 n. 122,
 354, 357, 369, 370, 377, 380, 385, 387,
 453, 485, 490, 491, 501, 503, 541, 548
 Antiochia Margiana (Merv) 480, 502
 Antistius Rusticus 124
 Antonine Itineraries 202, 255
 Antonine Plague 5, 29, 117, 127, 485, 531, 549
 Antonine Wall 304, 309–10, 318–19
 Antoninus (Caracalla) 185
 Antoninus Pius 80, 225 n. 88, 478, 485, 492,
 533, 544
 Antonius, Gaius Antonius 142
 Antonius, Marcus Antonius (Mark
 Antony) 223, 481
 Antonius, Marcus Antonius Maximus 79
 Antonius Aelianus 188
 Antonius Callistratus 490
 Antwerp customs 53
Anxi 451, 453–5, 458–60
 Aoste 315
 Apamea 31
 Apennines 221, 230
 Apollo 140
 Apollonius 181, 192, 501–2
 Apollonopolite Heptakomia 181
 Appian 142, 149–50, 152, 161, 481
 apple 228, 274
 Apt 281–2, 288
 Aquileia 354, 374, 381
 Aquilius, Gaius 151
 Aquillius, Marcus 142
 Aquincum 307
 Aquitaine 271
 Aquitania 318
 arabarchs 560
 Arabia 1, 13, 15, 219, 369, 443, 446, 479, 484,
 491, 493, 501, 503, 538, 558–9, 580–2,
 585–6, 594
 Arabia Felix 580–2, 585
 Arabian Gulf 273, 484
 Arabian Peninsula 13, 548, 558, 580, 594
 Arabs 386, 446, 558
 Arachosia 453
 Aral Sea 467
 Aramaic 211, 463, 468, 479, 483, 489, 504, 548
 arbitration 59–61, 65
 compromissum 65
 episcopalis audientia 65
 archive 38, 42, 58, 140, 164, 192, 195, 201,
 255, 431, 465–7, 534, 593
 of Athenodorus 192, 195
 Arezzo 302
argentarii 83, 95, 97, 109, 134–6, 139–41,
 143–4, 146, 148, 162–3, 171; *see also*
 bankers
 Arikamedu 273, 477, 544, 557
 Aristius Optatus 42
 aristocratic financiers 134–5, 142, 144–6, 160,
 163, 171
 Arles 245, 247, 249, 251, 268, 271, 276–8,
 280–2, 287–8, 290, 343, 354, 378,
 381–2, 384
 Armenia 501–2
 armies 5, 71, 74, 153
 army 7–8, 12, 28, 31, 36, 41, 101, 105, 154, 185,
 307, 378, 382, 385, 387, 429, 432–5,
 460, 485, 582, 587, 609–10, 612, 614
 aromatics 579
 Arsacid 476, 498, 500
 Arsacids 498
 Arsinoe 32, 34, 178–80, 190
 Harbour of the Sacred Grove 178–9, 192
 Arsinoite Nome 39, 183, 193, 204
artabas 33, 34, 44–5, 80, 179–82, 185, 187–8,
 190–2, 194, 196–8, 200

- Artaxata 502
 Artemis 140
 ash 223, 228, 603, 610, 614
 Ashkelon 357
 Asia 30, 40, 149–50, 153, 156–9, 161, 221,
 225–6, 231, 273–5, 278, 285, 363–4,
 370–2, 376, 381–2, 384, 447, 449, 451,
 453–4, 456–8, 462, 466–8, 470–1,
 475–6, 479, 495, 504–6, 544
 Central Asia 447, 449, 454, 462, 466–8,
 470–1, 475–6, 495, 504–6
 East Asia 456–8, 544
 Inner Asia 447
 Asia Minor 40, 156–7, 161, 221, 273–5,
 278, 285, 363–4, 370–2, 376, 381–2,
 384, 479
 Aspandhat 462
asses 124, 314, 403, 405–7, 409, 411–12,
 414–18, 614
 assets 44, 55, 69, 71, 73, 97, 106, 108–9,
 138–9, 158–9
 Astorga 280–1, 284
 Athenodorus 192, 195, 200
 Athens 1–2, 53, 57, 101, 122, 146, 162, 353–4,
 360, 367–71, 373–7, 379–82, 437, 446
 Atlantic 271, 302, 353, 428–9
 Attalus 31, 156
 Attica 122, 435
 Atticus 142–3, 145–6, 161–2, 171
 auctions 71, 84, 96, 103, 106, 109, 141, 143,
 164, 618
 Aufidii 140, 164
 Aufidius Bassus 140
 Augila 607, 610, 619
 August 282–3, 290, 354, 369, 373, 377
 Augustus 8, 13, 28, 31, 36, 38, 75, 181, 437,
 449, 496, 500, 502, 537, 539, 566–8,
 573, 581–2, 585, 609
 Aurelian 32, 181, 184, 199, 335, 378, 380, 547
 Aurelian Wall 375
 Aurelius, Marcus Aurelius (emperor) 478
 Aurelius Appianus 193
 Aurelius Cotta 146
 Aurelius Demetrios 193
 Aurelius Dionysius 200
 Aurelius Heracles 180
 Aurelius Serenus 193
 Aurelius Tryphon 193
 Aurelius Victor 492
aurei 169, 416, 496, 543–4, 565, 568, 573
 Austria 285
 Austrian Alps 222
 Austuriani 615–16, 619
 Autun 245, 247, 251–2, 287, 290
 auxiliaries 37, 314, 548
 Avenches 268, 272
 Axius 142, 145
 Axumites 594
 Ayn Manawir 608
 Baalbek 357, 369
 Bab El-Mandeb Strait 585
 Babatha archive 58
 Babylon 484, 491, 497, 500–2, 504
 Babylon (Old Cairo) 541
 Babylonia 453–4, 480, 493, 498, 502
 Babylonians 558
 Bacchias 39
 Bactra 474, 477
 Baelo Claudia 436
 Baetica 272, 278, 287, 291, 293, 370, 381,
 427–8, 430–8
 Bahar et-Trouna 605
 Bahr Yusef 202
 Bahrain 273, 491
 Baiae 230
 Bakar 290
 baking dishes 368, 376
 Balearics 343
 Balkans 123
 balms 282
balsamaria, *see* glass, *balsamaria*
 bamboo 451, 466
 Bambyke 454, 479, 501
 Ban Biao 459
 Ban Ch'ao 458, 460, 480, 506
 Ban Gu 459–60
 Ban Zhao 459
 Banasa 428–30, 432, 436
 Banassac 434
 banditry 8
 bankers 71, 73, 77, 82–3, 94–100, 103–5, 108,
 134–41, 143–5, 146–8, 151–2, 158–9,
 162, 164, 194
 banking 54, 56, 74, 77, 82, 95–6, 102, 105,
 108–9, 134, 138, 140, 147–8, 150, 152,
 157–8, 162, 164
 bankruptcy 90, 96, 99
 banks 77, 81–2, 95–6, 99–100, 103–5, 108,
 133–5, 137–41, 146–52, 156–60,
 162–5, 169–71, 250, 252, 498, 543, 588
 Bar Kochba Revolt 503
 Baraqis 582
 barbarians 1, 55, 63, 91, 109, 128, 456, 465,
 470, 614
barbaricum 91, 303
 Barbarikon 454, 471, 477, 492–3, 559
 barge 195, 197
 Bargylia 161
 barley 178–9, 185, 188, 195, 614
 Barnack 248, 253
 barrels 6, 271, 279–80, 292, 334, 543

- barter 64, 67, 70, 101, 467, 496
 Barygaza 454, 457, 471, 475, 477, 493, 496,
 559, 573
 basalt 241
 Basileion 480
 Basilica Hilariana 381
 Basit 354, 357, 361–2, 364, 369
 basketry 534
 baths 218–19, 254, 375, 380, 418, 603
 Batnae 481, 503
 Battle of Myonnesos 220
 Bay of Bengal 454, 457–8, 495
 Bay of Salerno 224
 bazaar 4, 343
 Bazigraban 502
 Bb'l 437
 beans 178–9, 194–5
 kidney beans 179
 Bearsden 284
 Beaucaire 247–8
 Begram 273–4, 473–7, 506, 541
 Begram Treasure 475, 477
 Beirut 353–8, 360–80, 382–5, 387, 389, 390
 Bel 278, 483–4, 489–90, 497
 Belgica 274, 310, 312
 Belgium 252, 273, 287
 benefaction 9, 40–1
beneficarius 195
 Bengal 454, 457–8, 495
 Benghazi 354–5, 360, 373–7, 379
 Berber conquests 428
 'Berber diaspora' 616
 Berenice (Cyrenaica) 301
 Berenike (Red Sea) 15, 454, 477, 493–4,
 537–41, 547–50, 561–5, 593
 beryl 535
 Berytos 139
 Besarion 181
 Bet Eli'ezer 267
 Bevons 288
 Biesheim 286
 Bijan 490
 Bilma 607
 Bingen J. 533
 Bisitun 502
 Bithynia 142, 161, 225, 231
 Bithynians 2
 Black Sea 15, 65, 255, 271, 273–5, 353, 360,
 368, 370–3, 376–7, 382–3, 385, 387,
 454, 475, 491, 593
 blankets 415, 417, 460
 Blemmyes 15, 531
 Bodele depression 607
 Bois 247–9
 Bokhara 464
 Bolton 288
 Bonn 288
 booty 16, 30–1
 Bordeaux 230, 274–5
 Bornu route 605, 607
 borrowers 83, 94–6, 99, 135, 159–61, 165
 Botna 503
 Boudicca 304
 Bougie, *see* Saldae
bouleutai 180, 199–200
 Boulnois, Luce 447
 Boulogne 283
 boundaries 2, 162, 344
 Bourdeau 251
 bourgeoisie 3
 Bourges 285–6
 box 221, 255, 476, 613
 Braga 280–1, 283
 Braudel, Fernand 217, 228
 bread 534
 Bregenz Museum 415
 brick production 220
 bricks 215, 254, 256, 446
 Brindisi 354, 360, 373–7, 437
 Britain 8, 12, 14, 16, 31, 41, 176, 198, 243,
 245–6, 248, 252–5, 273–4, 277, 284–7,
 292, 301, 303–23, 370, 374, 382, 414,
 618
 British India 566
 Brittany 308, 318, 320
 brokers 146, 197
 bronze 46, 151, 153, 155–6, 215, 219, 226, 436,
 445, 464, 474, 478, 506, 548, 560, 565
 Bronze Age 226, 445
 Brutus, Marcus Brutus 142
 Budapest National Museum 404
 Bu Ngem (Bu Njem) 605, 613–15, 618–19
 bubonic plague 5
 budgeting 8, 31–2, 46
bullae 498
 bullion 33, 43, 45, 147–8, 152, 165, 169, 543
 gold bullion 43, 45
 silver bullion 152
 bureaucracy 9
 Burma 460
 Bushire 453
 Butrint 353–4, 360–70, 374–9, 381, 383,
 386–8
 buyers 7, 64, 66–70, 76, 81, 106, 122, 198, 344
 Byzacena 226, 328, 435, 616
 Byzantine Empire 5, 342
 Byzantine Oriens 385
 cabotage 340
 Caecilius, Q. Caecilius Candidus 98, 161
 Caen 248, 253
 Caelius, M. Caelius Rufus 145

- Caerleon 284, 288
 Caesar, C. Julius Caesar 75, 141, 143, 145,
 160, 165–70, 213, 225, 539, 610
 Caesarea in Cappadocia 10
 Caesarea Maritima 354, 357, 369, 384–5, 613
 Caesarea Mauretaniae 329–30
 Cairo 15, 541
 Calabria 220, 225
 Calicut 566
 Callinicum 502
 Callistratus 125, 490
 de cognitionibus 125
 Cambodia 478
 Cambridge 118, 287–8
 camel drivers 195
 camels 38, 195, 243, 443, 446, 448, 465–6,
 469–70, 482–3, 489, 501, 594, 610, 616
 cameo glass 274
 Campania 128, 222, 224–5, 230, 273, 437,
 572, 591
 canals 5, 15, 175–6, 178, 181, 186–7, 197, 212,
 502, 541
 Cannanore 566
canon frumentarius 342
canon olearius 341
canon suarius 128
canon vinarius 335, 342
 Canterbury 248, 253, 288
 Cap Blanc 333, 336
 Cap Bon 331, 341
 Cap Camarat 277
 Cape Comorin 544
 capital (financial) 44, 55, 64, 73, 87, 91–2,
 95–6, 99, 101–9, 134, 150–1, 158–60,
 165, 167–8, 171, 198, 213, 343
 capitals (stone) 248, 253, 255, 435
 Cappadocia 10, 37, 124, 142
 Cappadox 138
 captains 88–90, 139–40, 177, 179, 182, 187,
 194–5, 199–200, 204, 493, 565
 Caracalla 59, 199, 220, 254, 432, 548, 567–8;
 see also Antoninus (Caracalla)
 Carandini A. 327–8, 335–7
 caravan trade 344, 447, 465, 585, 607, 609
 caravans 266, 344, 443, 445–9, 454, 461–3,
 465, 467, 474, 477, 480–5, 490–2, 494,
 496–7, 500–1, 504–6, 547, 560–1, 580,
 585, 599, 607, 609, 612, 618
 caravanserais 490, 503
 Carcassonne Gap 248
 cargo cargoes 1, 7, 11–12, 14, 39–40, 71, 82,
 90, 94, 101, 158, 179, 185–6, 188,
 190–8, 200–1, 203–4, 220, 229, 241,
 247, 249, 251, 253, 268, 270, 276–7,
 293, 322, 332, 336, 338–40, 342–4, 378,
 382, 386–7, 436, 475, 494, 542, 560, 564
 private cargo 7, 203
 state cargoes 7, 12
 carnelian 16, 604–5, 608
caro porcina 128
 Carrara 241, 247, 435
 carrying capacity 38
 Cartagena 337
 Carthage 57, 118, 218, 220, 271, 327, 337–9,
 354–5, 379, 386–7, 604, 609
 carts 241, 322, 465, 470
 cash 29, 31–2, 36, 40–1, 43, 45–7, 77, 80, 104,
 136, 143, 148, 154, 157–8, 160, 165,
 496, 618
 Caspian Gates 480, 502–3
 Caspian Sea 454, 491, 497
 Cassiodorus 65, 128–9
 Variae 128
 Cassius Dio 610
 Castleford 315
 Castricius 161
 Castro Pretorio 594
 Catalonia 271
 Catilinarian conspiracy 162–3
 Catiline 162–3
 Cato the Elder 92, 94–5, 165, 214, 225–7, 229
 Catterick 286
 cattle 67, 90, 211, 227, 451
 Caunus 161
 cedar 211
 Celts 558
 census 43
 Ottoman 494
centonarii 229–30
 Central Anatolia 445
 Central Eurasia 448
 ceramics 10, 328, 359, 379–80, 433, 534,
 547; *see also* pottery
 cereals 429
 Ceylon 495
 Chach 464
 Chang Chi 460
 Chang'an 450, 454, 463
 Characene 453–4, 459
 Charax, *see* Spasinou Charax
 charcoal 213, 215–17, 219, 226, 228
 chariots 608
 charters 199
 Chatelain 249
cheirismos 181–4, 188–9, 202
 chemical analyses 266, 270, 276, 293,
 331, 474
 cheque 53, 81
 Cherbourg peninsula 308
 Cherchel 329, 339
 Chersonesos 354, 365–6
 Chesterford 286

- chestnut 228
 Chia Hsiang-Li 458
 Chianciano Terme 11
 chickling vetch 190–1
 China 216, 443, 445, 447–9, 451–9, 461–7,
 469–81, 483, 485–7, 489, 491–3, 495,
 497–9, 501–6, 544, 546, 559
 Chinese 16, 443–5, 448–9, 452–80, 486–9,
 492–3, 495, 498, 506, 507, 544, 547
 Chinese Annals 478
 Chios 354, 364–6, 386
chirographs 75–82, 96, 98, 104
 chiton 414
chora 125, 188, 190
Chronicon Paschale 503 n. 314
 Chur 282–3
 Church 250, 386, 390
 Cicero 104, 125, 133–4, 141–6, 149–51,
 154–5, 157, 159–65, 167, 170–1, 221,
 224–5
 De imperio Cnaei Pompeii 149
 De officiis 125, 141, 144
 In Catilinam 163
 Pro Caecina 141, 159–60, 164
 Pro Quinctio 141, 151
 Pro Sestio 145
 Pro Sulla 162
 Cidamus, *see* Ghadames
 Cilicia 57, 161, 223, 230–2, 357, 368–9, 371,
 374, 384, 593
 Cinnamus 84, 314
 Cinnamus 84, 314
 ‘Circle of the Straits’ 427, 432, 436–8
 Cirencester 286
 Cisalpine Gaul 152
 cities 7, 13, 40, 54, 56–7, 62, 77, 118, 120, 134,
 142, 147, 161, 190, 199, 202, 222, 231,
 242–4, 255–6, 282, 293, 315, 329, 331,
 334, 339, 343, 355, 368, 371, 374, 379,
 384–5, 428–9, 435, 437, 455, 459,
 480–1, 483–5, 497–9, 502–3, 585, 608,
 610, 616, 618
 medieval cities 7
 citizens 11, 40, 53, 56–9, 61–2, 76, 86, 90,
 92–3, 119, 126, 141, 145, 149, 152–3,
 161, 180, 198–9, 400
 citrus wood 230
 city prefect 219
 Clanis 229
 Classe 271, 301, 332, 360, 419, 533
Classis Erythraica 199 n. 124
 Claudia Berenice 200
 Claudius (emperor) 198, 225, 489, 495, 501,
 569, 570, 571, 574
 Claudius Firmus 180
 Claudius Ptolemy, *see* Ptolemy (geographer)
- Claudius, Tiberius Claudius Germanicus
 75, 562
clausula arbitraria 71
 cleaning (of textiles or clothes) 10, 401,
 414–16, 418–19
 Cleese, John 138
 Cleopatra 223, 444
 cloaks 405, 413, 415–17
 Cloatius, Marcus 161
 Clodius, Sextus Clodius Phormio 141
 Cluvius 145, 161
 Clysma 5, 15, 541
coactores 140
 Cochin 567
Code de Commerce 53
coemptio 128
 Coimbatore 567
 coinage 3, 8, 28, 46, 82, 102–3, 109, 133, 144,
 152–9, 163, 165–7, 169, 428–9, 437,
 448, 494, 496, 531, 543, 557, 559–61,
 563, 565, 567–8, 573, 581–5, 594, 611
 Alexandrian 28, 68, 75, 199–200, 270, 378
 bullion 33, 43, 45, 147–8, 152, 165, 169, 543
 cistophoric coinage 156–7
 debasement 152–3, 155, 169, 572
 dies 303
 reform 31–2, 42–3, 107, 184, 378, 405–6,
 543, 568, 572–3
 silver coinage 153, 155, 158–9
 coins 14–15, 33, 79, 98–9, 102–4, 153, 155,
 167, 169, 303, 380, 404–5, 459, 464,
 474–5, 503, 505, 531, 533–4, 543–5,
 549, 559–60, 564–8, 572–3, 575,
 582–5, 612, 617–18
antoniniani 565
 Athenian Tetradrachms 156
 bronze (copper alloy) 46, 151, 153, 155–6,
 215, 219, 226, 436, 445, 464, 474, 478,
 506, 548, 560, 565, 575
 circulation 29, 54, 103–5, 107, 118, 152–3,
 165–7, 169, 265, 267–8, 270–3, 275, 277,
 279, 281, 283, 285, 287, 291, 293, 565
cistophoroi 156–7
 counterfeit 155
dupondius 405–7, 409–12
 gold 15, 43, 46, 59, 102 nn. 202, 206, 154,
 167, 169, 459 n. 83, 475 n. 181, 496,
 543, 545, 559–60, 566–7, 573, 575
 Greco-Bactrian 505
 Iberian *denarius* 156
 Imitation Ancient Athenian
 Tetradrachm 585
 imitations 386, 575, 617
 Indian 496 n. 277, 575
nummi 136, 154
 imitation *nummi* 575

- coins (*cont.*)
octans 406
 Parthian bronze 506
 Ptolemaic *tetradrachmai* 565
quinarii 152
 Republican coins 543, 572
 Sabaeen 582–3, 585 n. 15
 Sasanid 506 n. 323
 Seleucid 505
semis 405–7, 418
sescuncia 405
 silver coins 155, 459, 545, 559, 565, 567,
 575, 585
solidi 43, 45, 575
victoriatus 152
 see also *asses*; *aurei*; *denarii*; *sestertii*
 Colchester 245, 248, 252–3, 288, 302, 304,
 314, 318, 369
collegia 101, 108, 139, 229–30
 Cologne (Colonia Claudia Ara
 Agrippinensium) 274, 287–8, 291,
 354, 382
 colonies 56, 124, 225, 291, 328, 428, 445,
 456, 461, 463–5, 471, 477, 479, 493,
 504, 580
 colonists 163
 colonization 328
 Columella 214, 222, 225–7, 229
 columns 237, 248, 250–1, 253, 255–6,
 483, 533
 commanderies 454, 456–7, 478
 commenda society 53
 commerce *passim*
 Commercial Code 53
 commodities 2, 4, 10, 37, 39, 83, 175, 179,
 183, 190, 199–200, 212, 219, 225,
 244, 282, 287, 291, 293, 321–2, 413,
 476, 496
 Commodus 533, 544
 competition 12, 31, 129, 212, 314, 474, 585
 connectivity 2, 5, 254, 436
 Considius 142, 145
 Constantine 44, 219, 230, 380
 Constantinople 5, 45, 184, 337–8, 342, 353–5,
 380, 383–5, 387, 390
Constitutio Antoniniana 57, 59, 107
 consumers 12, 119, 123–7, 203, 215, 239–41,
 246, 314, 382, 549
 consumption 3, 37, 60, 63–4, 82, 98, 100, 119,
 122, 190, 192–3, 202, 215–17, 230–1,
 238, 240, 251, 274, 282, 307, 312, 314,
 317–18, 321, 427, 561, 604
 conspicuous 3, 276
 containers 11, 275, 277, 279–80, 287, 291–3,
 331–2, 382, 432, 593–4
 contractors 7, 31, 67, 72, 94, 212, 225
 contracts 8, 31, 39, 53–4, 58–60, 62–4, 66–7,
 69–78, 81–4, 86, 88–90, 92–4, 96, 98,
 100–1, 104, 107, 109, 147, 184, 188–9,
 191–2, 195, 197–9, 201, 203, 313,
 315, 600
 innominate contracts 66, 83
 iuris gentium 59–60
 mandatum 63, 72, 123
 misthoprasia 72
 mutuum 60, 62–4, 78, 82–4, 88, 98, 100–1
 receptum 72, 83, 86, 97, 148
 verbal 62, 64, 75
 stipulatio 58, 64, 70, 75
 written 58, 75–6, 78–80, 87, 94, 136, 141,
 144, 150, 159, 181, 195, 222, 237, 398,
 404, 413, 449, 462, 468, 472, 550,
 566, 588
 litterarum obligatio 76
 cooking pots 11, 376
 Indian 541, 547
 see also pottery, cooking wares
 coppicing 214, 226, 228
 Coptos 15, 38, 493–4, 537, 540–1, 548, 550,
 560–1, 564
 Coptos Tariff 38, 494, 560
 Corbridge 286
 Corinth 354, 362, 373, 377, 380–2, 387
 Corippus 615–16
 Iohannidos 615–16
 corn dole 190
 Cornelia Pompeia 151, 161, 165
 Cornelius, Marcus 190
 Cornelius Balbus 606, 609
 Cornwall 309
corpora naviculariorum 95
Corpus Iuris 53
 Corsica 221, 225, 230, 232, 277
 Cos 364–6, 444
 Cosmas Indicopleustes 2
 Christian Topography 2
 costs 6–9, 11–12, 16, 28–31, 36–8, 40,
 42, 45–7, 87–8, 90, 107, 117–21,
 123, 125, 127, 129, 177, 193, 195,
 201, 203–4, 221–2, 242, 252, 307,
 314–15, 321, 397, 401, 403, 405,
 407, 409, 411, 413–15, 417, 419,
 557–60, 613
 cotton 16, 58, 457, 465, 470, 489, 494–5, 603,
 605, 608
 councillors 184, 197, 201
 countryside 125, 308, 431
 courts 53, 56–8, 60–2, 101, 121, 155
 dikai emporikai 57, 61–2
 cow 466
 Crawford, Michael 93, 121–2, 152–7, 160,
 163, 225, 406, 572

- credit 70, 72, 78, 82, 84, 100, 102–5, 109,
 133–5, 138, 140, 142, 145–7, 149–50,
 154, 160, 163, 165–9, 171, 224, 600
 credit crises 135, 149–50, 160, 165, 167, 169
 49 BC 152, 160, 165–6, 169, 495
 63 BC 38, 162–3, 165, 170, 182
 88 BC 63, 134, 142, 149–51, 154, 156–9,
 161, 171
 AD 28, 33, 137, 140, 142, 165, 167, 169–70
 creditors 69, 72, 77, 79–81, 83–5, 89, 99–100,
 138, 143–4, 149, 151, 159, 161–2, 165–70
 Cretan 367, 370, 375, 377, 380–1, 386, 593
 Crete 221, 340, 367, 370, 373, 375–7, 379, 383,
 386, 428, 593
 Crisis of the Third Century 32
 Croatia 268, 340
 Ctesias 501
 Ctesiphon 480, 484, 491, 498, 500–2, 504
 cuneiform tablets 445–6
 currency 5, 7, 28–9, 32, 38, 43, 46, 156–7, 445,
 448, 464, 469, 477, 496, 573, 618
cursus clabularis 540
cursus publicus 11, 314, 321–2, 540
 curtains 415
 Curtius Rufus 213
 customs 5, 7–8, 13–16, 32, 37–40, 44, 47,
 53, 56, 91, 106, 193–5, 203–4, 344,
 415, 445, 476, 501–3, 561–3, 599,
 617–18, 619
 dues 7, 13–14, 16, 37–8, 40, 44, 194–5, 204,
 501, 617–18
 quarter-tax 14, 541
 revenue 5, 8–9, 13–14, 27–9, 32–4, 36–7,
 39–42, 45–7, 106, 204, 542
 see also tolls
 customs districts 204
 customs house 502
 customs post 501, 561
 customs receipts 195
 cypress 211, 226–8
 Cyprus 231, 278, 369, 374, 379, 446
 Cyrenaica 387, 428, 608, 612, 619
 Cyrene 157
 Cythnos 1

Da Qin 458–61, 471, 477–9
 Da Yuezhi 459
 Dacia 74, 123
 Dalverzin 475
 Damascus 357, 369
 Danube 17, 255–6, 285, 303, 307–8, 310, 360,
 376, 382, 385–7
 Lower Danube 360, 382, 387
 Upper Danube 256, 310
 Daraut Kugan 480
 Dardagani 255
 Dardaine 127
dardanarii 121–4, 127
 Dardanii 123
 Dardanus 123
 dates 40, 167, 184, 306, 367, 370, 380, 385,
 446, 462–3, 465, 470, 475, 483–4, 486,
 534, 537, 603, 605
Daxia 451, 454
Dayuan 450–2, 455, 460, 468
De Bello Africo 610
De viris illustribus 137
 deal (wood) 240
 debt debts 33, 74–83, 86, 88–9, 100, 106, 138,
 142–4, 147–1, 155, 157, 159, 161–3,
 165–6, 168–9, 170, 469
 debtors 69, 71–2, 77, 79–81, 84–5, 94, 96,
 99–100, 109, 138, 141, 145, 149, 151,
 161–2, 165–71, 183
 Decapolis 503
 decurions 93, 107, 124, 126–7
 deficits 33
definitio silvarum 211
 deforestation 213, 223–4
delegatio debitoris 81, 142, 147, 170
 delicts 66, 85
 actio damni adversos nautas caupones
 stabularios 86
 actio furti adversos nautas caupones
 stabularios 85
 Delos 68, 139–40, 157, 164, 446
 Delta 5, 59, 190, 204, 458, 492–5, 593
 demand 4, 6–7, 9–10, 12, 43, 82, 84–5, 91,
 104, 120–1, 128, 138, 168, 201, 212–16,
 221–2, 227, 230, 237–40, 243–4, 246,
 251, 292, 321, 341, 380, 427, 539, 559,
 600, 604–6
 Demosthenes 82, 134
denarii 38, 40, 124, 150, 152–3, 155–7, 160,
 163, 165, 169, 223, 227, 323, 402–19,
 495, 543–4, 559, 565, 568, 572–3, 583
dendrophori 225, 229–30
 deposit 13, 78, 80, 82–3, 96–9, 103–4, 133–6,
 138–40, 146–8, 151–2, 158–60, 163–4,
 170–1, 215, 265–6, 268, 271, 275, 304,
 315, 358, 372, 374, 376, 379–81, 385,
 389, 429, 435, 474–5, 534–7, 547–8,
 550, 567
 deposit banking 134, 164
 Desert Migrations Project 600
 Desert-Guard Tax, *see* tax, Desert-Guard tax
 Devon 309
 Dichin 354, 386
 Didymoi 270, 494, 541
 Didymus 185
Digest 74, 78–81, 92, 123, 125–6, 141, 147,
 214, 414

- Dilmun 491
 Dio Cassius 165–6, 169
 Dio Chrysostom 231, 501, 558
 Diocletian 28, 43, 59, 80, 89, 107, 128, 219,
 270, 355, 371, 378, 380, 385, 413,
 499, 547
 Diocletian's Prices Edict 28, 223, 241,
 270, 413
 Diodorus Siculus 219, 221
 Dionysammon 199
 Dionysius of Halicarnassus 221
 Dionysius Periegetes 542
 diorite 241
 Dios 541
 Diospolite Nome 188
dipinti 376, 386, 535
 diplomacy 476
 diplomatic gifts 16
 diplomatic missions 451, 454, 467, 506
 diplomatic relations 8, 449, 506
 diplomats 546
 dirigisme 129, 438
 disease 5; *see also* plague
 distribution (of goods) 6, 10–12, 71, 95,
 101, 105–6, 120, 123, 125, 211–387
 passim 435, 476
 division of labour 12, 30
 Dobroudja 255
 Dokimeion 237
dolia 334
dominium ex iure Quiritium 61, 63–4, 67–8
 Domitian 37, 121, 124, 222, 254, 533,
 610–12, 619
 donkeys 178, 183, 193, 219, 465–6, 470, 605
 Dorchester 14
 Dorn 286
 Dover 248, 252, 288
 Drava river 256
 dress 5, 444
 Drina river 255
 dromedary 285, 606–7
 Drury, Captain H. 565
 Drusus 143, 152–3, 155, 489
 Duncan-Jones, R. P. 14, 28–38, 40–1, 43–5,
 169, 241, 413, 445
 Dunhuang 448, 452, 454, 462–6
 Duo Iani 145
 Durand 538
 Durren 354, 387
 dwarfs 478
 dye 404–5, 418–19, 437
 dyeing 401, 404–5, 413, 418
 dyers 34, 402, 404, 419

 Early Principate 55, 75
 earthquakes 379, 387, 616

 East Anglia 318
 East Asia 456–8, 544
 East Sussex 309
 Eastern Aegean 593
 Eastern Alps 255
 Eastern Mediterranean 139, 220, 229–30, 239,
 265, 268, 276–8, 335–7, 340, 342–3,
 377, 384, 446, 580, 593, 615
 Ebro 434
 Ecbatana 477, 480, 500, 502–3
 economic behaviour 4, 8, 29, 190
 economic determinism 3
 economic growth 30, 33, 117–19, 133, 146–7,
 165, 212
 economic history 2–3, 118, 344
 economic policy 2, 32, 129
 economic rationalism 4
 economy *passim*
 agrarian 27, 86, 117, 341
 Byzantine economy 353
 decline 9, 377
 extra-provincial economy 342
 growth, *see* economic growth
 imperial economy 8, 30, 237, 341–3
 market economy 6, 342
 policy 2, 32, 33 n. 28, 90, 119, 128–9, 149,
 157, 503
 provincial economy 16, 342, 344
 Ed-Dur 273
 Edessa 499, 503
 Egnatius 143
 Egnatius, M. Egnatius Suavis 84
 Egypt 1, 6, 12–15, 31–3, 35, 37–8, 42, 44–7,
 56–9, 80, 102, 104, 175–204, 212, 218,
 220–1, 223, 226, 229–30, 266–7,
 270–1, 273–4, 276, 322, 323, 336–7,
 342, 344, 368–9, 371, 374, 376, 387,
 446, 453–4, 475, 494–5, 531–50, 561,
 565, 580–2, 591, 593–4, 603, 607–8,
 615–19
 Eastern Desert 12–13, 15, 199, 202, 237,
 270, 494, 531–2, 536–7, 539–42,
 548–50, 560, 567, 618
 grain fleet 5
 Western Desert 195, 344, 607–8
 Egyptian months
 Choiak 187
 Pachon 187
 Phaophi 188, 193
 Pharmouthi 187
 Tybi 187
 El Mahrine 329–30, 337
 El Oued 617
elaionai 122
 elder (wood) 228
 elephants 285, 432, 478

- elites 3–4, 7–9, 48, 127, 134, 137, 142, 145–7,
 163, 171, 199–200, 226, 228, 239, 251,
 273, 432, 437, 438, 557–8
 consumption 3
 houses 430
 elms 227
 embassies 16, 449, 451, 454–7, 460–1, 467–9,
 473, 477–8, 480, 483, 492, 498, 506,
 544, 546, 550, 587
 emeralds 535
 Emesa 369, 479, 484
 Emperor Huandi 477
 Emperor Pingdi 457
 Emperor Wu 473
 Emperor Wudi 449, 456, 466, 498, 506
 emporia 1, 9, 471, 496–7, 502, 504
 Endere 467, 469
 Ennion 273, 475
entolai 534–5
 entrepreneurs 42, 108, 135, 200, 316,
 448, 478
 Ephesus 118, 156, 159, 231, 365–6, 378–9, 387
 Epidaurus 157, 223
epimetrum 107
 Epirus 226, 379, 386
epistalma 185
Epitome De Caesaribus 492
equites 28, 158–9
 Erythraean Sea 453, 585
 estates 35, 44, 48, 88, 91–2, 102, 190, 192–3,
 202, 212, 226–7, 291, 432
 imperial estates 35 n. 37, 191, 212, 289,
 291, 342
 Estremoz 435
 Etruria 225, 437
 euergetism 9, 41, 44, 413
 Euphrates 377, 385, 446, 480–1, 490, 499,
 501–2, 547
 Middle Euphrates 446, 490
 Upper Euphrates 481
 Europe 215–17, 276–7
 early modern Europe 7
 evaporite salts 605
 Evenus Primianus 75–6
 exchange 7, 33, 53–4, 66–7, 69, 83, 118–20,
 155, 157, 254, 272, 278, 293, 315,
 432, 443–4, 446–9, 451, 456, 459,
 461, 465, 467, 471, 475, 485, 490,
 496–7, 502–3, 506, 544, 550, 560,
 568, 573, 587, 607
 Exeter 319, 534
 exports 4, 9, 11, 14, 38–9, 56, 91, 105, 109,
 122, 158, 163, 170, 231, 337, 355–6,
 369–78, 381–2, 384–7, 427–33, 435–7,
 445, 487, 548, 559–61, 563, 573, 579,
 594, 604–5
 Faberius 143, 171
fabri 229–30
faeneratores 145–6, 162–3, 167–8
 Faimingen 282–3
 fairs 503
 family 54, 135, 140, 160–1, 313, 342, 415, 431,
 453–4, 456, 459, 462, 485, 572, 609
 famine 10, 28, 462
 Fan Ye 478
Fanfu 479
 Far East 445–7, 463, 478, 480–1, 495–6, 498,
 504, 507, 557, 560
 Farasan Islands 15, 531, 582
 farmers 73, 86, 101, 104, 106–7, 125, 145,
 158–9, 163, 226, 459
 farms 1, 67, 101, 165, 327, 430
 M. Favonius Facilis 253
 Fay 247, 251
 Fayum 34, 39, 176, 178–81, 187, 192–3,
 322, 535
 Fayum portraits 535
 Fazzan 16, 599–600, 602–10, 612–19
 Fazzan Project 600
 Ferghana 450–3, 455, 467–8
 Festus 151, 213, 610, 612–13
 Fewet 603
 field survey 600
 figs 367, 370
 finance 8, 53, 55–7, 59, 61, 63, 65, 67, 69, 71,
 73, 75, 77, 79, 81, 83, 85, 87, 89–91, 93,
 95, 97, 99, 101, 103, 105, 107, 109, 140,
 144, 149, 164, 168, 238, 564
 financial institutions, *see* institutions, financial
 financial intermediaries 135
 financing 54, 56–7, 63, 73, 92, 95, 106, 118,
 203–4
 financing costs 203–4
 fines 469, 492
 finewares 11, 372, 376, 382, 384, 428, 433,
 543, 612
 Finley, Moses 3
 fir 211, 217, 221–3, 227, 240
 firma 53
 First World War 397
 fiscal grain 342–3
 fiscal instruments 29
 fiscality 27
fiscus 38–9, 183, 490
 fish 11, 73, 91, 123, 292–3, 331–2, 334–5, 342,
 360, 367–8, 370–1, 373, 377, 380–2,
 428–9, 431–2, 434–6, 474, 604, 613
 products 11, 335, 342, 370–1, 380, 431–2,
 604, 613
 salteries 334
 salting 292, 431
 sauce 73, 91, 371, 428–9, 431–2, 434–6, 438

- Fishbourne 245, 248, 252–3, 274
 fishing 38
 Flavia Solva 255, 314
 Flavian period 16, 230, 268, 272, 432–4, 572, 609
 Flavius Albanus 403
 Flavius Josephus 267
 Flavius Ortygius 616
 flax 199
 Florence 213
 fodder 191–3, 316
 foggaras 601–2, 605–8, 616–17, 619
 food 7, 28, 37, 119, 122, 189–90, 202, 314, 316, 413–14, 419, 433
 food distributions 28
 food supply 7, 122, 190
 Forat 454, 484
 Forgensee bei Dietringen 416
 forging 216
 Fort Miribel 617
 forts 15, 273, 314–15, 385, 458, 539, 605, 614–15, 617–19
 forum 40, 136, 247–8, 250, 314–15, 379, 430
 forum rerum venalium (market) 120, 128
 Forum (Rome) 144, 149–50, 444, 532, 534
 Forum Boarium 444
 Fos 274, 288
 France 9, 38, 40, 53, 216–17, 241, 244, 254, 268, 271, 287, 292, 308, 340, 415, 589
 Franciens 247, 251
 Frank, Tenney 3, 38, 143–4, 155
 frankincense 14, 16, 493, 586, 594
 fraud 107
 freedmen 15, 75–6, 87, 91–6, 100, 137, 140, 162, 489, 495, 541
 freight charges 190–1
 freight contracts 192, 195, 201
 frontiers 13, 16, 204, 303–4, 307, 309, 314–15, 318–19, 322, 429, 449, 452, 455, 461–2, 468, 481, 497, 498, 499, 502–3, 560, 599, 603, 605, 607, 609, 611, 613–15, 617–18
 northern frontiers 16–17, 322
 southern frontier 16, 429, 599, 603, 605, 607, 609, 611, 613, 615, 617, 619
 fruit 9, 126, 226–8, 278, 303, 367–8, 373–4, 376, 384
 frying pans 368, 376
 fuel 212–13, 215–20, 223–4, 227–9, 539
 Fulcinus, Marcus 159
 fullers 34, 402, 413, 415, 419, 501
 fulling 401, 413, 418
fullonicae 406
 Funan 454, 458, 478
 Funan Dynasty 458
 furnaces 215, 266
 furniture 217, 432, 475–6
 furs 454
 Gabinius 79, 145
 Gabinius Secundus 79
 Gades 427, 431
 Gadir 427–8, 431
 Gaius (jurist) 69, 76–80, 82, 84, 102
 n. 204, 214
 Galerius 255
 Gallia 156, 250, 274, 310, 312, 369, 433
 Aquitania 318
 Belgica 274, 310, 312
 Lugdunensis 250
 Narbonensis 156, 246, 249, 433, 437
 Gallienus 180, 199, 219, 378, 535
 Gamzigrad 255
 Gan Ying 458–60, 480, 484, 506
 Gandhara 444, 467
 Ganges 457, 494–6
 Gangsu Province 466
 Gansu 458, 462–3
 Gansu Corridor 463
 Garama, *see* Jarma
 Garamantes 16, 599–600, 603–10, 612–14, 618–19
 garments 1, 43, 401, 413, 418–19, 457, 470, 486, 489–90
 Garnier, N. 331–2, 334, 380
 Garonne valley 246
 garrisons 7, 313, 615
garum 11, 73, 101, 105, 292, 332, 370, 374, 432
 Gasr Duib 614
 Gaul 59–60, 102, 152, 176, 184–5, 203, 221, 226, 245–8, 250–1, 271, 273–7, 280, 282, 285, 287, 290, 292, 302–3, 305, 307–8, 310–11, 314–15, 317–18, 321, 342–3, 370, 374–5, 381–2, 428, 434, 475, 503, 594
 Gaza 38, 354, 357, 360, 369–71, 374, 383, 446, 503
 GDP 28–30, 42, 48, 117, 212
 aggregate 28, 30, 40, 45, 48, 64, 105, 109, 163, 253
 per capita 35, 48, 117–18, 212, 216
 Gebel (Tripolitanian) 614–15
 gems gemstones 16, 452, 478, 535, 600, 604, 608
 General Cullen 566
 Genua 221
 Gerillani 139
 Maraius Gerillanus 139–40
 Germania 252, 312, 369, 414
 Germania Inferior 312
 Germania Superior 252, 312, 414

- Germanicus 75, 483–4, 489
 Germany 17, 53, 65, 274, 282, 285, 287,
 292, 302–5, 307–8, 310–12, 314–15,
 370, 374
 Geta 185
 Ghadames 607–8, 614–15, 618
 Gharb 429, 432, 438
 Ghat 600, 603, 607
 Gheriat el-Gharbia 613–14, 618–19
 Ghorband 473
 Gibraltar 428, 436
 Gigthis 608, 618
 Gilgit 472
 giro-system 102
 glass 9–10, 215, 265–94, 315, 388, 428, 456,
 458, 471, 474–5, 600, 603, 605
 amulets 277
 aryballoi 273
 balsamaria 268, 275
 Isings 28, 268
 Isings 6, 268
 type 8, 268
 beakers 474
 bellied pots 274
 bottles 267, 277–80, 282, 284–5, 287, 291–3
 Mercury bottles 279–80, 282, 285, 294
 bowls 273–6, 471 n. 160, 474
 Isings 12, 274–5
 cameo glass 274
 cinerary urn 274
 colourless glass 270–1, 274, 276
 cups 273, 276, 434, 474
 cut glass 474
 goblets 276
 Italian workshops 273–4, 276
 jars 279–80, 282, 285, 292
 Levantine 268, 270–1, 278
 miniature barrels 279–80, 292
 moulded bowls 273
 primary workshops 265–7, 271
 raw glass 265–8, 270–2, 276, 293, 471, 475
 recycled 266, 271–2
 Rhineland workshops 273, 276
 ribbed bowls 474
 ribbed cups 273
 secondary workshops 266–8
 tesserae 272
 unguentaria 277–8, 280, 282, 285, 287–8,
 290–2, 294
 De Tommaso 54 278
 workshops of Sidon 267, 273
 glass production 265, 276, 471
 glassware 5, 16, 268, 270–1, 273–4, 276, 287,
 293, 471, 474, 604, 613, 615
 globalization 5, 443
 Gloucester 288
 gneiss 250
 gold 15–16, 43, 45–6, 102, 152, 154, 163,
 166–7, 169–70, 273, 445, 451–3, 456,
 459, 474–5, 478, 496, 543, 545, 558–60,
 566–7, 573, 599, 605–6
 Golfe du Lion 246
 Gondophares 474
 Gordian III 614
 Gortyn 57
 Goths 61, 63, 65, 70
 Gourara 617
 government 28–32, 39–47, 105, 107, 120, 130,
 140, 149, 169–70, 179, 182, 212, 214,
 219, 225, 377, 449
 Gracchus, *see* Sempronius, Tiberius
 Sempronius Gracchus
 Grado 271
 graffiti 314, 404, 413–14, 461, 472–3, 477,
 494, 506, 613
 grain 5, 7, 11, 31, 45, 64, 76, 80, 83, 91, 101, 103,
 106, 119, 124–7, 175–82, 184–90, 192,
 196–8, 200, 202–4, 211, 219–20, 322,
 335, 337, 340, 342–3, 378, 385, 387,
 390, 428–30, 432, 437, 446, 465, 605
 grain fleet 5
 grain trade 103
 granaries 80, 178, 185, 187, 189, 429–30, 533
 granite 12, 241, 246, 248, 250–1, 255
 Aswan 250, 255
 granito del foro 532–3
 Mysian 248
 Troas 248, 251
 granodiorite 532
 grapes 227
 Great Britain 273–4, 277
 Great China 459
 Greece 82, 156–7, 161, 220, 223, 379, 444
 Greek East 60, 142, 157
 greensand 254
 Gross Domestic Product, *see* GDP
 Guadalquivir River 427
 Guangdong 457
 Guangxi Province 458
 guard posts 498, 501
 Gujarat 492
 gulf of Sirte 328, 344, 608, 610
 Gummern 256
 Gupta 567–8
 Guzang 462
 Gytheion 161
 Hadramautic inscriptions 493–4
 Hadrian 15, 107–8, 122–3, 176, 181, 194, 204,
 211–12, 225–6, 246, 304, 314, 341, 415,
 418, 485, 492–3, 503, 533, 539, 543,
 546–7, 550

- Hadrian's Villa 533
 Hadrian's Wall 246, 304, 314
 Hadrumetum (Sousse) 229, 329–30, 342
Haixi 454, 460–1
 Hamaxia 223
 Hammamet 337
 Han China 448, 459, 476, 507
 Han Chinese 456, 460, 476
 Han Dynasty 447, 449, 452, 456, 461, 465, 467, 473, 486–7, 498, 506, 544
 Han emperor 452, 456, 460, 467, 473, 478, 492, 498
 Han Empire 450, 453–5, 457
Han shu 449, 456–9, 473, 544
 Hannibalic War 225
 Hansen, Thorkild 327
 harbours 1–2, 6, 8, 12, 15, 38, 118, 176–9, 186, 189–95, 204, 231, 241, 495, 503, 537–8, 579, 581, 583, 585–9, 594, 613
 Harlow 286, 288
 harvest 103, 109, 124, 178–9, 185, 187, 189, 197, 203, 430
 Hatra 500
 Hayami 228
 hazel 228
 health 181
 Heat 453
 Hebrew 472
 Hebron 503
 Hecatompylos 477, 480, 498, 502
 Hector 474
 Hedin, Sven 447, 464
 Hellenistic period 5, 266, 268, 357, 453, 481, 483, 498, 611
 Heptanomia 204
 Hepu 457
 Heracleia in Caria 161
 Heracleia (Black Sea) 354, 372
 Heracleides 179
 Herakleopolite Nome 186, 202
 Herculaneum 217, 414, 474, 593
 Herennius 141
 Hermes 584
 Hermias 190
 Hermopolis 43, 180, 190–1, 201
 Hermopolite Nome 190–1, 193
 Herodotus 501, 580, 604, 607–8
 Heroninos 77, 102
 Herulians 379
 Hieria Nesos 33
 Hierapolis 479–80, 501
 Hierax 183
 Hierobol 548
 High Tibetan plateau 473
 Himalayas 495
 Hindu Kush 474
 hinterland 7, 212, 220–1, 305, 313, 316, 594
 hire 60, 63, 66–7, 71–2, 83, 88, 193
 Hispania Tarraconensis 247, 433
Historia Augusta 218
 History of the Former Han Dynasty 449
 Histria 221, 255
 Hit 490–1, 616
 hoarding 121, 124, 160, 166, 169
 hoards 121, 124, 153, 156, 163, 475, 496, 543, 565, 567, 572, 585
 'tesoretto di Rimigliano' 565, 567
 Kottayam 565, 567
 honorific inscriptions 483
 Honorius 126, 230
 Hopkins, Keith 4, 7, 28–30, 35–6, 41–2, 117, 163, 175, 177
 Horace 144, 444
 Horiodeiktia 33, 44
 Horion 185
horrea 189, 429–30
 horses 452–3, 460, 465–6, 610
Hou Han shu 544
 houses 274, 278, 380, 430, 502
 Howgego, Christopher 3–4, 29, 146, 153, 155, 445
 Huandi 477
 Huangzhi 456–7
 Humber 310
 Hun 473, 608, 614, 616–17
 Hunger steppe 498
 hunting 214, 231
 Hunza 472
 Husn-al Ghurab 587
 Hydreuma 533, 541
hydreumata 539
 Hyginus 35–6, 214, 225
 Hyphanton 190
 Hyrcania 480
 Iberian Peninsula 271, 274, 277, 280, 282, 284, 287, 291, 293, 305, 427, 429, 436
 Iberians 558
 iconography 277, 448, 579, 583
Idios Logos 183, 191
 Illyricum 226, 381, 386
 immigration 476
 imports 13–16, 31, 38, 123, 193, 195, 218, 238, 240, 242, 248–51, 267, 274, 276, 278–9, 282, 284–5, 292, 328, 337, 341–2, 355–6, 360–8, 370–1, 373–6, 378, 380, 382–5, 387, 428, 430, 433–8, 445, 457–8, 471, 494, 538, 541, 600, 603, 609, 613, 615
 In Tafaret 602
 incense 14, 155, 446, 579, 585, 587–8, 594
 Incense Road 446

- income 14, 28, 30, 34, 36–41, 44, 94, 106–9, 117–18, 145, 161, 222
- India 1, 5, 13–16, 39, 267, 273, 445, 451, 453–4, 457–61, 466, 468, 471–5, 481, 484–6, 491–6, 499–504, 506, 507, 531, 535, 537, 539, 541–7, 549, 557–61, 565–8, 572–3, 575, 580–1, 585, 591, 593–4
- Northern India 16, 451, 461, 495, 506, 547, 559
- Indian Ocean 13, 270, 273, 454, 457, 493, 497, 542, 579, 585, 594
- Indian Peninsula 477, 494
- Indian Sea 448, 492, 498
- Indians 444, 458, 462, 476, 492, 501, 506, 507, 558, 565, 594, 609
- 'Indo-Pacific' beads 541
- Indo-Roman trade 531, 537, 541, 549, 575
- Indus 456, 472–3, 492–3
- Industrial Revolution 215
- industry 7–8, 10, 12, 46, 71, 91–2, 105–7, 109, 147–8, 164, 265–6, 293, 302, 309, 318, 370, 385, 431
- inflation 46, 109, 198, 377, 379, 415
- infrastructure 6–9, 12–13, 15, 118, 212, 231, 238, 241–2, 254, 314–15, 321, 537
- Inner Asia 447
- Inner Mongolia 463
- Inqitat Marbat 586
- Inqitat Taqah 586
- inscriptions 139–40, 144, 211, 231, 239, 273, 285, 292, 316, 398, 400–4, 408, 411–13, 415–19, 435, 437, 472, 478, 483, 493, 498, 502, 505, 533–4, 538, 547–9, 566, 580, 582, 585, 587, 594, 603, 614
- institor* 88
- institutions 4, 7–8, 27, 31, 58, 61, 63, 65–6, 119, 129, 133–5, 137, 139, 141, 143, 145–7, 149, 151, 153, 155, 157, 159–61, 163–5, 167, 169, 171, 177, 456, 506, 600
- financial 7, 133–71
- interest 78, 82, 87, 94–101, 103–4, 108–9, 123, 134, 139, 141–2, 145, 148, 151, 161, 164–70
- interest rates 161, 165
- uncial 151, 164
- investment 6, 8, 15, 27, 74, 86–7, 91, 93, 95, 100, 102, 104–6, 108–9, 147, 167, 194, 198, 222, 231, 238, 254, 322, 379, 383–5, 531, 537
- Iran 274, 443, 466, 485, 487, 497–500, 503–4, 548
- Iranian (language, script, texts) 463 n. 104, 468–9, 472, 498
- Iranian Plateau 477, 480, 496–500, 502, 504–5, 507
- Iranians 484
- iron 215–16, 219, 229, 437, 446, 608
- ironworking 216, 219, 608
- irrigation 602–3, 606, 608
- Isidore of Charax 443, 502
- Parthian Stations* 443, 502, 505
- Isis 474, 534
- Isis Myrionomos 534
- Islamic Mediterranean 600
- Istria 222, 230
- Italian Peninsula 221, 428
- Italy 31, 33, 40, 59, 63, 67, 69–70, 101, 104–5, 120, 128, 139–40, 153–4, 156–7, 160–1, 163, 165–6, 168, 214, 217, 219–21, 225–6, 228, 230, 232, 243, 271, 273–4, 276, 278, 282, 284–8, 290, 302–3, 332, 335, 337, 340, 360, 369, 374–5, 381, 414, 435–6, 475–6, 499, 565, 591, 612
- iugatio* 45, 371
- Iulius Aquila 252
- ius Italicum* 40, 63
- ivory 14, 39, 437, 474–6, 494, 557, 599
- Jade Gate 465–6, 470
- Jalo 607
- Jarabub 607
- Jarma 600, 603–5, 609, 612–13
- Jerba 331, 608
- Jerusalem 357, 369
- jettison 90, 94–5
- jewels, jewellery 5, 478, 535, 558
- Jewish War 267
- Jews 65
- Jiangnan 450
- Jiaozhi* 457–8, 478
- Jibin* 455–6, 473
- Jih-nan 478
- Jinan 492
- Jofra oases 607–8, 614, 616, 619
- John Troglita 616
- Jones, A. H. M. 2, 46, 353
- Jordan 219
- Josephus 267
- Juba II 433
- Judaea 211, 230
- jugs 376, 434
- Julius Caesar, *see* Caesar, C. Julius Caesar
- Julius Maternus 610, 612
- Junian Latins 62, 87, 93
- juniper 211
- Justinianic Plague 5
- Juvenal 239, 542
- Juyam* 455
- Kab Marfu'a 535
- Kalsdorf 416

- Kan Ying 459
 Kanchi(puram) 457
 Kandahar 453, 467
 Kanesh 445
 Kang 458
Kangju 451–2, 454, 456, 460, 463–4
 Kanishka 474
 Karakoram Gorge 473
 Karakoram graffiti 472, 506
 Karakoram Highway 472–3, 477
 Karakoram Pass 473
 Karanis 33–4, 44
 Karashahr 460
 Kashgar 461, 466, 492
 Kashmir 455–6
 Kattigara 495
 Kaunos 40
 Kavar 605, 607
 Kayseri 10
 Kazakhstan 464
 Keelaloor Dashom 566
 Kelibia 331
 Kempten 415
 Kentish Ragstone 252–3
 Kerala 539, 542–3, 567
 kettles 376
 Khag 491
 Khamissa 40
 khan 454, 482
 Kharkor 503
 Khor Rori 548, 585–6
 Khotan 461, 467–9, 473, 492
 Khyber Pass 474
 kiln sites 11
 kilns 11, 219, 305, 307, 321, 322, 329, 431–2, 434, 437
 Kingdom of Vanga 457
 Kingsholm 357, 367, 369–70, 374
 Kish 464, 472
 Knossos 354, 360, 370, 373–4, 377, 379
 Kodungallur 543
 Kohn, Meir 118
koina 128
 Kokaman necropolis 603
 Kollenberg 286
 Koma 202
 Komedai Mountains 480
kommerkiarioi 386
 Koper 354, 386
 Korba 331
 Kos 354, 386
 Kostolac, *see* Viminacium
 Kottayam 565, 567
 Kourion 379
 Krishnagiri 572
 Kroraina 468–71
kubernetai 179, 181, 183, 184, 186, 187 n. 62, 188, 197, 199–200, 202
 Kucha 452
 Kunlun mountains 467
 Kupa River 397
 Kur 497
 Kushan 466, 468, 473–4, 480–1, 492, 496, 507
 Kynopolite Nome 192
 La Couronne 249
 La Croix-Rousse 250
 La Graufesenque 105, 109, 302, 305–6, 313, 317, 322, 434
 La Madeleine 307, 313, 317
 labour 12, 30, 54, 64, 180, 186, 213, 221, 228, 238, 254, 322
 division of labour 12, 30
 labour force 322
lachanospermon 192
 lacquer 476
 lacquerware 474, 476
 Ladak 473
 Laguatan 615–16, 619
 Lake Balkhash 467
 Lake Chad 607, 610
 Lake Como 282
 Lake Mareotis 189
 Lambaesis 344
 lamps 328, 339, 593, 600, 613
 land 1, 8–9, 27, 31–6, 41–8, 63, 66–7, 69–71, 91–2, 101, 106–8, 122, 125–6, 152, 154, 165, 167–70, 175–9, 181, 191, 202–3, 214, 216–17, 221–9, 241–2, 428, 447, 457, 463, 480–1, 490, 497, 502–3, 540, 558, 580, 582, 585, 591, 608, 616
 basilike 46
 demostia 44, 46
 lease 47, 58, 60, 67, 71–2, 83, 88, 193, 198, 225
 landowners 3, 28, 34, 54, 71, 101, 105, 124, 126, 190, 193–4, 197, 214, 217, 226–8, 231
 Langres 245, 247–8, 252
 Languedoc 268, 271
 Laodicea 357, 368, 591–3
 larch 221
 Latakia 369
 Late Antiquity 128, 215, 270, 277, 279, 503
 Late Republic 120, 134, 142–3, 162, 212, 221
 Late Roman 331, 336, 355–6, 359, 375, 506, 538, 540, 548, 593, 615–16
 Later Empire 46, 55, 63, 88, 106–7
 Later Han 449, 456, 544
 Later Han Dynasty 449, 456, 544
 Later Roman 353
 Later Tang 463

- Latin League 61
 laurel 228
 lava 322
 law 53–69, 71–7, 79–81, 83, 85–7, 89–91, 93,
 95–7, 99–103, 105, 107, 109, 118–22,
 124, 126, 147–51, 155, 159, 166–9, 194,
 599, 607
 commercial law 53–4, 90, 118, 120
 enforcement 119–20, 147
 ius commercii 58, 61–3, 68–9
 ius gentium 57–8, 60, 62–6, 73, 75–7, 80,
 82, 101
 ius Italicum 40, 63
 law courts 56
 lex Coloniae Genetivae Iuliae 225
 lex commissoria 70–1
 lex Cornelia de falsis 155
 lex Cornelia Pompeia 151, 161, 165
 lex Cornelia testamentaria 123
 lex Flavia 121–2
 lex fori 58
 lex Gabinia 161
 lex Irnitana 93, 121
 lex Iulia de annona 121, 127
 lex Papiria 152, 405
 lex portorii provinciae Asiae 35, 38–9
 lex Rhodia de iactu 90
 lex Valeria de aere alieno 151
 plebiscitum Claudianum 92
 Roman law 53–5, 57–60, 62–6, 68, 75, 81,
 90, 97, 100, 119–20
 dikai emporikai 57, 61–2
 laws 7, 55, 57, 128, 151, 157, 165
 lead pollution 214
 lead tags 256, 397–401, 409, 415–16
 lease 47, 58, 60, 67, 71–2, 83, 88, 193, 198, 225
 leather 565
 legal structures 7
 legal texts 72, 109
 legion 166, 179, 202, 489, 610
 Legio II Traiana Fortis 201
 Third Augustan Legion 610
 Third Legion 179
 X Fretensis 489
 legionaries 37, 198, 314
legis actiones 61–2
 legislation 57, 122, 147, 162, 167, 171, 198
 lenders 83, 135, 137, 145, 149, 160–1, 164, 170
 lending 92, 94, 99, 134–5, 138, 140, 142,
 144–7, 151, 160–2, 164–5, 168, 170–1
 lentils 75, 178–9
 Lepcis Magna 333, 374–7, 379, 381, 608, 610,
 612, 614, 616, 618
 Leptiminius 329–30, 339, 342
 Leptis (probably Lepcis Magna) 141, 164
 Les Laurons 249
 Les Martres de Veyre 307, 313, 317–18, 320
 Les Rosiers 434
 Lespignan 247, 249
 Lesser Headache Mountains 473
 Lesser Syrtes 608
 Leto 140
 letters of credit 104
 Leuke Kome 541, 548
 Lezoux 303, 305, 307–14, 316–17, 434
 liabilities 45, 138–9, 158–9
Liang-shu 478
 Libanius 2, 5, 230
libertus 54
 Libya 16, 328–9, 331, 373–5, 600, 605
 Libyan alphabet 603
 Libyan Sahara 16, 599
 lifestyle 7–8
 Lighthouse Beaker 474
 Liguria 221–2, 230–1
Lijian 451, 453–4, 460
 Lile 191
 lime 215, 219, 266, 375, 388
limes 304, 336, 462, 613
 limestone 241, 245, 246, 248–9, 251–5, 385,
 430, 435, 502, 504
 Limestone Massif 385
 Limyrike 457, 559
 linen 199–200, 457, 462, 489
 linen-transporter 199–200
Liousha 459
liquamen 11
 literacy 600
Lithinos Pyrgos 479, 481
 litigation 57–62, 65, 87
 liturgies 32, 40, 177, 178, 180, 185–6, 188–9
 liturgists 31
 Livius Drusus 152–3, 155
 Livy 148–9, 152, 218
 Lixus 428, 431–2, 435–7
 Lksh 437
 Lo-Yang 458
 loans 39, 60, 62–4, 72, 73, 75–8, 80, 82–4, 88,
 91–6, 98–101, 103–4, 109, 123, 134–5,
 137–41, 142, 144–6, 149–52, 158–61,
 163–7, 168–71, 542, 564
 bottomry loans 82, 94, 100
 maritime loans 39, 542
 Lombard 337
 London 13, 118, 218, 245, 248, 252–3, 286,
 303–4, 311, 316–17, 320, 323
 Lop Desert 464
 Lop Nor 467–8
 Lotus Eaters 608
 Loulan 455, 462–5, 467–8, 470–1, 477, 487
 Low Countries 273–4, 285
 Lower Egypt 204

- Lower Germany 310–12, 314
 Lower Nubia 494
 Lower Period 587
 Lubiana 287
 Lucania 128
 Lucceius 141
 Lucciana 288
 Lucian 542
 Lucius Verus 485, 547
 Lugdunensis 250
 Lugdunum 250
 Lugo 280–1
 lumber 219
 Luna 247, 250–2, 254
 Luoyang 450, 463
 Lusitania 381, 415, 435
 luxuries, luxury goods 3, 4, 7, 237, 276, 323, 481, 489, 557–8, 607
 Lycia 230, 232, 340
 Lyco 136, 138
 Lydia 161, 267–8
 Lyons 245, 250–1, 268, 270, 272, 287, 292, 354, 373, 375, 381–2, 587
 Altar of the Three Gauls 250
 Odeon 250

 Maarsares 491
 Macedonia 57, 142, 156, 221, 226, 231, 267
 Maes Titianus 479–80, 507
 Magdalensberg 415–16
 Maghreb 328, 431, 435
 Magna Mater 230
 Magnus Rufus 183
 Maidstone 248, 252
 Majorca 333, 339
 Maksud, Alihanov-Avars kij 504
 Malabar Coast 39, 457, 471, 493, 496, 566
 Malay Peninsula 457
 Mali 617
 Mambog 479
 Mamora 430
 Mamre 503
 Manbij 479
mancipatio 58, 61–4, 67–9, 84
 mandate 60, 63–4, 66, 72, 81, 100
 Manlius, Gaius 163
mansiones 43, 275, 314–16, 322, 500
 Mantinius 146
 manufactory 91
 manufacture 199, 219, 265–6, 272, 277–8, 292, 314–15, 432
 manumission 32, 37, 57, 87, 92
 maple 221
 Maraius Gerillanus 139–40
 marble 7, 237, 240–1, 245, 246, 247, 249–52, 254–6, 267, 428, 435, 435, 437, 613

 Luna 247, 250–2, 254
 Paros 250, 386
 Pentelikon 250
 Pyrenean 246, 249
 Thasos 246, 250
 Marcianus 126, 490
 Marcus Aurelius, *see* Aurelius, Marcus
 Aurelius (emperor)
 Mareotis 189, 270
 Marinus of Tyre 479–80, 495, 610
 maritime trade 2, 4–6, 9, 11, 16, 53, 118, 272, 277, 445, 495–6, 507, 579–81, 583, 591
 Marius Gratidianus 154
 Mark Antony, *see* Antonius, Marcus Antonius
 (Mark Antony)
 market, markets 2, 4, 6–7, 9–12, 27–9, 31–3, 37, 44, 54, 67–8, 74, 86, 90, 91, 101, 104, 108, 117, 119–29, 133, 138, 140, 143, 150, 165, 168, 170, 171, 177, 192, 194, 197, 198, 201–2, 212, 217–18, 221, 224–9, 232, 246–7, 266, 268, 270–2, 280, 285, 287, 293, 314–15, 319, 337, 341, 342–4, 373–4, 377, 380, 382–5, 387, 431, 436, 443, 559, 593, 600, 604–6, 618
 market economy 6, 342
 market regulation 7, 117, 119, 121, 123, 125, 127, 129–30
 Marmarica 607
 Marquise 248
 Marseilles 245, 247, 249, 270–1, 276, 339, 343, 354, 376, 384, 386, 390
marsippia 564
 Martial 239, 413–14, 418, 444, 611–12
 Liber de spectaculis 611–12
 Masalia 495
 mass production 6, 12
 Mauretania 162, 230
 Mauretania Caesariensis 329, 344, 429
 Mauretania Tingitana 284, 328, 427–38
 Mauri 432
 measures 12, 45–6, 149–50, 154–5, 161, 166–7, 170, 184, 192, 231
 Media 502
 medicaments 277
 Medina 446
 Mediterranean 2–5, 11–13, 15, 90–1, 101, 105, 117–19, 128, 139, 211, 213, 215, 217–21, 223–7, 229–31, 238–9, 242, 251–3, 255, 265, 268, 270–1, 273, 276–80, 282, 285, 292, 302–3, 305, 328–9, 331, 333–8, 340, 342–4, 353, 360, 372, 377–8, 382, 384–5, 427–8, 433, 436–8, 444–8, 460, 474–5, 491, 494, 501, 503, 506, 538, 548, 564, 579–80, 591, 593–4, 600, 603–5, 607–8, 615

- Medjerda 331, 336–7
 Mekong Delta 495
 Memphis 182, 194, 204
 merchants 1, 2, 7–8, 15, 53, 56, 60, 67, 85, 92,
 103, 105, 119, 124–5, 128, 138–40, 163,
 183, 199, 202, 212, 225, 228, 230–1,
 278, 292, 322, 378, 432, 443, 445–6,
 451, 454, 456, 457–8, 460–3, 465, 467,
 469–70, 472–3, 476, 478–9, 480–1,
 484–5, 489–92, 495, 497, 502–6, 546,
 548, 550, 560, 562–5, 585, 589, 594,
 613, 618
 Mercury 279–80, 282, 285, 287–8, 470, 584
 Meredates 484
 Merida 283, 288
 Merv 449, 477, 480, 498, 502, 504–6
 Mesene 453, 459, 484, 497, 500, 547
 Mesopotamia 57, 443, 446, 477, 480, 483–4,
 491, 496–7, 501–2, 507, 531, 546–8
 Lower Mesopotamia 483–4
 Upper Mesopotamia 501
 metallurgy 215–16
 metals 9, 215, 428, 445, 496, 559
 gold 15–16, 43, 45–6, 102, 152, 154, 163,
 166–7, 169–70, 273, 445, 451–3, 456,
 459, 474–5, 478, 496, 543, 545, 558–60,
 566–7, 573, 599, 605–6
 iron 215–16, 219, 229, 437, 446, 608
 lead 33, 47, 67, 69, 95, 99, 154, 169, 214–15,
 217, 256, 272, 293, 397–401, 409,
 415–16, 437, 462, 474, 481, 500, 559,
 581, 603
 platinum 496
 silver 4, 14–15, 46, 97, 102, 109, 134,
 151–9, 163, 165–7, 169–70, 191,
 193, 198, 215, 217, 227, 445, 459,
 462, 494, 496, 498, 543, 545, 558–60,
 565, 567, 573, 585
 metropoleis 184, 190, 337, 370, 385, 480
 Middle Ages 53–4, 85, 109, 272
 Middle East 616
 Middle Egypt 204
 Middle Euphrates 446, 490
 Middle Kingdom 459
 Middle Period 588
 Middle Persian 472
 middlemen 92, 102–3, 443
 Milan 354, 381, 587
 milestones 202, 459, 615
 military budget 14, 30, 36–7
 military clothing 43
 military expenditure 33
 military supplies 6–7, 28, 189, 199, 201–2,
 203, 204, 253, 313, 377
 Millar, Fergus 443
 mills 430
 millstones 5
 Minatius, Marcus 139
 Minean 580
 mines 30, 103, 220–1, 607
 drainage 467, 496
 mining 117, 147, 219, 437, 535
 Minnagar 492
 mint 104, 157, 169, 437, 568, 583, 611
 Mithradates 149–50, 153–4, 157, 159,
 161, 498
 Mithradates II 498
 Mithradatic Wars 149, 157, 169, 497
 Mizda 610, 614–15
 Mjlet 268
 Mleiha 273
 Moesia Superior 255
 Mogador 436
 Mokha 583
 monetization 4, 198
 money 3, 28–9, 32, 34, 36, 43, 45, 47, 60, 62–4,
 66, 71, 77–8, 80–4, 88, 92–101, 103–5,
 107, 133–9, 141–9, 151–2, 154–8,
 160–3, 165–70, 193, 198, 200, 315, 401,
 404–5, 413, 415–18, 455, 496, 543,
 557–9, 561, 563–5, 567, 573
 fiduciary money 81–2, 103
 money supply 133, 147, 149, 152, 170
 money-multiplier effect 158
 moneylenders 97, 145, 149–50, 161
 Mons Ancorarius 230
 Mons Claudianus 532, 534–6, 539–41, 549,
 563, 593
 Mons Porphyrites 534, 540–1, 549
 Mons Smaragdus 535
 monsoons 585, 594
 Montagny 247, 251
 Montans 318–21, 434
 Monte Testaccio 332, 375–6, 437
 Monti Pisani 221
 Montis Berenicidis 539
 Montpellier 281
 Monty Python's Flying Circus 138
 monuments 413, 504–5, 533
 Moors 616
 Morocco 291, 328, 331, 427, 430, 432–3, 436
 mortaria 315, 318
mos regionis 59–60
 Moscha Limen 548, 585
 Moselle 253, 277
 Moselle valley 277
 Mount Lebanon 211, 223
 Mount Pendeli 435
 Mqm Shmsh 437
 mulberry trees 471
 mules 322, 614
 mummies 470, 471, 486, 489

- munera* 32, 36, 40–1
 Municius Rufus 489
 Murecine 78, 82
 murex 405, 437
 Musulamii 609
mutationes 314, 316, 322
mutuum 60, 62–4, 78, 82–4, 88, 98, 100–1
 Muziris 14–15, 39, 454, 471, 475, 477, 493–4,
 500, 542–3, 549, 560, 567
 Muziris Papyrus 14–15, 39, 475, 494, 542,
 549, 560
 Mylasa 40, 161
 Myos Hormos 14–15, 39, 477, 493–4, 536–8,
 540, 547–50
 Myrmekion 354

 Nabataea 538
 Nabataean inscriptions 479 n. 197, 538
 Nabataeans 446 n. 19, 453–4, 484 n. 217
 Nabeul (Neapolis) 329, 331–2, 334, 339, 341,
 342, 343
 Najran 446
 Nakhshab 464
 Namada River 493
 Nane 472
Nanghai 456
 Nar 229
 Narbonensis 156, 246, 249, 433, 437
 Narbonnaise 277–8, 280, 285, 287
 Narbonne 245–7, 249, 276, 354, 381
 nard 39, 494
 Nasamones 608, 610–12
 natron 265–8, 475, 605
naukleroi 176–84, 185–6, 188, 197–200,
 202–3
 Naupactus 231
navicularii 128, 184
 Naxos 1
 Neapolis (Egypt; harbour at Alexandria) 180,
 182–9, 202
 Neapolis (Tunisia), *see* Nabeul
 Near East 273
 Neas Poleos 188–9
 necropolis 434, 437, 483, 496–7, 588, 603
 Negev 446
negotiatores 44, 54, 124–5, 127, 129, 316
 Nelkynda 471, 493
 Nero 567–8, 573, 609
 New Institutional Economics 119, 129
 Nicaea 161
 Nicanor Archive 593
 Nice 247, 249, 288
 Nicomedes III of Bithynia 142
 Nieuwenhagen 286
 Niger Bend 607, 617
 Nijmegen 273, 286, 290

 Nile 2, 5, 15, 71, 175–7, 179, 181, 183, 185–7,
 189, 191–7, 199, 201–3, 270, 344, 494,
 531, 537, 540–1, 560–1, 564, 593, 607
 Nile Delta 5
 Nile Valley 344, 540, 607
 Ninos 501
 Nisa 498
 Nisibis 499, 502
 Niya 468–70
 nomadism 436
 nomes 39, 45, 179, 181, 183, 185–8, 190–3,
 195–6, 197, 199, 202, 204, 539
 Apollonopolite 181, 188, 196
 Arsinoite 39, 183, 186, 188, 193, 196, 204
 Diospolite 188, 196
 Elearchia 188
 Herakleopolite 186, 188, 196, 202
 Hypselite 188, 196
 Leontopolite 188, 196
 Lower Diospolite 188
 Lykopolite 188, 196
 Metelite 188
 Nilopolite 188
 Oxyrhynchite 45, 179–80, 185–8, 191–3,
 195–6
 Phthenote 188
 Prosopite 196
 Psthenite 196
 Upper Kynopolite 188
 non-Romans 55, 57, 60, 68–70, 73, 77–8,
 95, 101
 Norbanus, C. Norbanus Ptolemaeus 190
 Noricum 230, 255, 303, 310, 314
 Normandy 275, 318, 320
 Norroy 253
 North Africa 11, 35, 141, 218–19, 226, 230,
 277, 327, 599–600, 610, 616
 North Sea 310
 North Syria 481
 North Vietnam 457–8
 North, Douglass 119
 northern provinces 285, 287, 382
 Norway 274
 Novius, C. Novius Eunus 75
 Nubia 494, 591, 593
 Numerius 161
 Numidia 329, 344, 429, 610, 616–17, 619
nummularii 95, 97, 140
 nut oil 382

 oak 223, 228
 oasis 195, 344, 455, 481–3, 486, 490, 493,
 504–5, 601, 603, 605, 607–8, 613–19
 oasis agriculture 607
 Oberaden 13
 Oc-Eo 478, 495

- Oea (Tripoli) 330, 610, 612, 614, 618
offectores 405, 418
 ointments 282
 Olbia 354
 olive mills 430
 olive oil 4, 7, 11, 16, 73, 91, 101, 105, 193, 212,
 215, 241, 293, 321, 331–2, 334, 336,
 370, 382, 430, 432, 604
 presses 334, 360, 385, 430
 production 125, 334, 336, 370, 430–1, 438
 olives 339, 430
 pickled olives 339
 Olympia 157
 Oman 470, 495, 548, 586
 Ophellius 200
 Orange 245, 247, 249–50, 281–2, 288
 Orosius 35–6, 45
 Ostia 11, 220, 222, 224, 327–8, 333, 354,
 370–1, 373–5, 378, 380–1
ostraca 498, 533–6, 540, 549, 605, 614, 618
 Ostrogothic Kingdom 129
 Ottoman 494
 Oudhna 329–30
 oven 537
 Ovilana 287
 Oxford Roman Economy Project 27
 Oxus 472
 Oxyrhynchite Nome 45, 179–80, 185–8,
 191–3, 195–6
 Oxyrhynchus 44–5, 179–80, 183, 185–8,
 190–4, 196, 198–201, 243, 414

 Paccius Rogatianus 98
 pact 82, 86, 98
pacta adiecta 70
 in diem addictio 70–1
 lex commissoria 70–1
 pactum displicentiae 70
 pacts 66
paenula 414, 417
 painting 274
 Pakistan 274, 466, 468, 472, 475, 502, 547
 Pakoibis 563
 Palashy Amsham 566
 Palatine 142, 222, 380, 404
 Palestine 254, 274, 277–8, 360, 383–4, 446,
 503, 580
 Palestinian coast 266–7, 271, 278
 Palmyra 13, 38, 477, 481–94, 496–7, 500,
 504–5, 507, 531, 546–50, 618
 Agora 490
 Hellenistic settlement 482–3
 Temple of Bel 483–4, 489, 497
 Tomb 46, 486–7
 Tomb of Atenaten 486
 Tomb of Elahbel 486, 488
 Tomb of Iamblichus 486
 Tomb of Kitot 486–8
 Tomb of Marona 492
 Western Necropolis 496
 Palmyra Museum 488, 492–3
 Palmyrene archers 494
 Palmyrene Red Sea Shipowners 493, 548
 Palmyrene Tariff 40, 485, 489, 505
 Palmyrenes 483–6, 489–94, 496–7, 500,
 504–5, 507, 547–50, 594
 Panjshir 473
 Pannonia 35–6, 214, 230, 255–6, 282, 303,
 307–8, 397
 Pannonia Inferior 230
 Panopolis 43, 198
 Pantheon 533
 Pantikapaion 354
 Paphos 354, 357, 367–9, 377
 Papinian 98
 Papius 181, 183
 Papius Iustus 126
 Papius Paetus 170
 papyrus 14–15, 39, 43, 57, 59, 62–3, 70–2, 76,
 177, 179–80, 185–7, 189, 198, 199, 201,
 203, 204, 211, 413, 414, 446, 475, 494,
 542, 549, 560, 563–4
 Ravenna papyrus 62 n. 39, 63, 70
 Parthia 5, 65, 451, 453–5, 459, 461, 482, 484,
 490–1, 497, 499, 501–2, 507, 546–7
 Parthian (language, inscriptions) 472, 498, n.
 285
 Parthian Empire 476, 484, 502, 507, 560
 Parthian War 479, 485, 550
 Parthians 443, 444, 449, 454–5, 459–60, 478,
 480, 481, 492, 498, 501–3, 505–7,
 547–8, 550
patrimonium 36, 38
 Pattanam 493, 543–4
pax Romana 5
 peace 7–8, 30, 64, 256
 peach 228
 pearls 273, 456, 557–8
peculium 55, 87–9, 91–2, 94, 96, 104
 Pelliot, Paul 447, 456, 462
 Peloponnese 161, 340, 386
 Pelusium 5, 43, 184, 203
 Pennines 310
 Peopling the Desert Project 600
 pepper 13, 462, 539
 per capita income 117–18
 peregrines 55, 58–65, 69–70, 76, 77,
 79–81, 400
 perfume 267, 277–80, 287, 291–2
 Pergamum 156
Periplus Maris Erythraei 13, 270, 492, 531,
 547, 559–60, 580, 582, 585, 587, 593–4

- Periyar River 543
 Persepolis 500
 Persian 190, 386, 453, 472, 484–5, 490–2,
 497–8, 500–2, 506, 546, 548, 594
 Persian Gulf 453, 485, 490–2, 497–8, 506, 546,
 548, 594
 Petra 446, 453–4, 479, 491
 Petronius 414
 Peutinger Table (Map) 202, 499–500
 Phacusaе 179
 Philostrate 501
 Life of Apollonius 501
 Phishan 473
 Phocaea 354
 Phoenicia 2, 360, 374, 376, 383, 385, 446, 485
 Phoenicians 2
 Phraotes 501
pignus, *see* pledge
 pigs 9, 86, 128, 199
 pimps 138–9
 pine 211, 223, 227
 Pinnius, Titus 161
 piracy 15, 83, 118
 pirates 90, 101
 Pisa 221, 586, 612
 Pisidian Antioch 124
 pitch 213, 221, 223, 225, 331–2
 plague 5, 29, 117, 127, 485, 531, 549
 Antonine Plague 5, 29, 117, 127, 485,
 531, 549
 Bubonic 5
 Justinianic Plague 5
 plane (tree) 228
 Plautus 135–9, 146
 Casina 138
 Curculio 136, 138
 Epidicus 137
 Pseudolus 139
 Truculentus 139
plebiscitum Claudianum 92
 pledge 69, 75–6, 82–5
 Pliny the Elder 1–2, 13–15, 38–9, 152–3,
 155, 214–15, 219, 221–2, 224–5,
 227, 230–1, 237, 256, 266–7, 374,
 414, 432, 444–6, 454, 471, 475, 479,
 495–7, 531, 557–60, 580, 583, 587,
 604, 608–11
 Natural History 214, 221, 237, 531, 611
 Po Valley 282, 285
 Poetovio 255
 Pohorje 256
 Poitiers 280–1, 288, 290
 Poitou 274
 politicians 134, 404
 Polytimus 190–1
 Pompeian Red Ware 368, 377
 Pompeii 75, 78, 144, 149, 228, 268, 304, 333,
 354, 356–7, 359–60, 368–71, 373–6,
 378, 386, 414–15, 476, 572, 591
 Via dell'Abbondanza 476
 Pompeius, Q. Pompeius Rufus 151
 Pomponius Mela 444
 Pons Sublicius 224
 Ponteau 247, 249
 Pontifex Maximus 539
 Poppaea Note 84
 population 27, 29–31, 34–5, 60, 117–18, 155,
 163, 190, 197, 214, 216–18, 250, 256,
 285, 309, 343, 419, 470, 472, 476–7,
 533, 607, 616
 porphyry 12, 255, 534, 541
 port cities 334, 485
 port networks 323, 338
 Port-Vendres 271, 277
 Porta Trigemina 218
 Porticcio 277
 ports 1, 5, 8, 11, 13, 15–16, 38–9, 42, 175–6,
 179, 181, 186–7, 188, 191, 195, 202,
 221, 249, 255, 268, 270, 271, 275, 277,
 293, 311, 316–17, 319, 332, 334, 336,
 338–40, 342, 368, 373, 376–8, 382,
 384–5, 387, 390, 397, 428–9, 431, 436,
 446, 448, 453, 457, 459, 471, 475, 477,
 485, 492–6, 507, 531, 537–42, 547–50,
 560–1, 567, 579–81, 583–7, 591, 593,
 608, 618
 river ports 176, 268, 560
 Portus 11, 212, 432, 490
 Portus Lixitanus 432
portus olearius (Rome) 212
 Poseidonius 185
 pottery 5, 9–12, 15–16, 66, 91, 101, 105, 215,
 219, 265, 301–3, 305–7, 313–17, 319,
 327–33, 335, 337–41, 343–4, 353, 355,
 360, 379–81, 433–4, 437, 482, 494–5,
 533–41, 544, 546, 549, 586, 591, 593,
 600, 603–4, 608–9, 612–13, 617
 African Red Slip (ARS) 11, 328, 371, 433–4
 Arretine 301–2
 Asia Minor LRC 384
 baking dishes 368, 376
 Black Glaze 437
 Black Gloss 335
 Campanian Black Gloss 335
 Cales 437
 Campana, A. 437
 Central Gaulish 315, 317
 coarsewares 615
 cooking wares 5, 11, 315, 318, 328, 339,
 368, 376–7, 380–1, 385, 434, 536, 547
 Corinthian relief bowls 276
 Cypriot LRD 384

- dishes 377, 591, 612
 Dragendorff form 18, 612
 East Gaulish 312–13
 Egyptian Red Slip 387
 finewares 11, 372, 376, 382, 384, 428, 433, 543, 612
 glazed 482, 539, 547
 mortaria 315, 318
 Phocian 368, 376–7, 387–8
 Pompeian Red Ware 368, 377
 Punic 30, 153, 157, 170, 268, 437, 603–4, 608
 red slip ware 11, 387; *see also* pottery, African Red Slip (ARS); Tripolitanian Red Slip (TRS)
 samian 11, 302–3, 315, 322–3, 367, 387–8
 South Gaulish 433–4
 tablewares 12, 276, 293, 302, 314, 323, 328, 335–6, 338–9, 341, 547
 terra sigillata 273, 276, 301–21, 376, 433–4, 437, 539, 591, 612
 Eastern Sigillata 376, 539
 Gallo-Roman sigillata 301–21
 Hispanic sigillata 434
 Italian terra sigillata 273, 301–2, 433, 591, 612
 Tripolitanian Red Slip (TRS) 615
 West Asian glazed wares 539
 see also amphorae
 pottery production 11, 329
 pozzolana 254
Praefectus Annonae 184, 341
praefectus Berenicensis 539
 praetor 62, 68, 70, 84, 88, 93, 101, 149, 154–5, 167–8
 praetorian prefecture 8, 381, 386
 Prakrit 468
 predation 8, 118, 203
 Preindustrial Europe 217
 presses, *see* olive oil, presses; wine, presses
 Price Edict of Diocletian, *see* Diocletian's Prices Edict
 prices 10–12, 28, 57–8, 64, 66–8, 70–1, 76, 94, 102, 109, 119–29, 124–5, 127–9, 143, 152, 166, 168–70, 191–2, 194, 198, 201, 217, 219, 222–3, 241, 270, 273, 282, 284–5, 287, 291–2, 314–15, 322, 397–8, 401–9, 411–19, 463, 466, 558, 560, 605
 Principate 31, 33, 55, 62, 75, 78, 95, 101, 134, 419
 procurators 181–6, 188–9, 291, 301, 313, 316, 489
 production 3–4, 6, 11–12, 54, 71, 103, 105, 109, 122, 125, 127, 133, 148, 152, 197, 212, 215–16, 218–20, 223, 225, 230–1, 265–8, 270–7, 282, 285, 287, 291, 293, 301–8, 310, 312–22, 327–9, 331, 333–4, 336–7, 344, 355, 360, 370, 373, 376, 380, 383–4, 386–7, 402, 406, 418, 427–32, 434, 436–8, 471, 474–6, 487, 603–5, 608
 productivity 41, 118, 125
 professional associations 128
 Prokonnesos 246
 property 3, 41, 58, 61, 64, 69–71, 73–4, 84, 86, 96–7, 99, 109, 118, 120, 123, 142–3, 147, 150, 152, 154, 161, 165–8, 170, 183, 191, 211, 217, 220–1, 224–5, 246, 291, 504
 prostitutes 139, 501
 Provence 268, 271, 336, 339
 proxy data 117
 prunes 370
 Psobthis 185–6, 195
 Ptolemaic period 176–7, 191, 195, 197–8, 540, 560
 Ptolemais 33, 178–9, 192, 373, 503
 Harbour of the Sacred Grove 178–9, 192
 Ptolemais Euergetis 192
 Ptolemais Hormou 178–9
 Ptolemais Nea 33
 Ptolemon 179
 Ptolemy Apion 157
 Ptolemy Auletes 142
 Ptolemy (geographer) 452 n. 43, 478–80, 495 n. 274, 544, 610–11
 Ptolemy, king of Mauretania 431, 433
 public buildings 224, 239–40, 315
 public expenditure 28, 41, 153
 public treasury 122, 141
 publicans, *publicani* 31, 86, 93, 103, 109, 145, 150, 489
 Publius Cornelius 582
 Publius Scipio Nasica Corculum 137
 pumice 254
 Purbeck Marble 252
 purse 564
Puteal Libonis 144–5
 Puteoli 109, 145, 161, 163, 171, 219
 Puy 275
 Puylobier 288
 Pyrenees 221, 246, 248, 251
 Pythius 141
 Qana' (Kane) 15, 454, 548, 588–9
 qanats 603
 Qasr ash-Sharraba 603
 Qasr Ibrim 494
 Qian Hanshu 473
 Qiang 451
 Qiuci 452

- quaestor exercitus* 386
 quaestors 148, 151
 quantitative easing 149, 170
 quarries 12, 237, 239, 240–1, 243–6, 248–50, 252–3, 255, 435, 531–5, 537, 540, 541, 549
 Mysian 248
 Troad 248, 251
 quarry sand 240
 quarrying 237–9, 243–4, 246, 256
 quasi-contracts 66
 quasi-delicts 66
 quays 241, 431, 537, 589
 querns 322, 603, 613
 Quinctius, Gaius 141, 151
 Quinctius, Publius 151
 Quintio 92, 94–5
 Quseir al-Banat 540

 Rabat 283
 Rabatak 492
 Rabirius Postumus 142, 162
 radish oil 193
 Raetia 221, 230, 232, 282, 285, 303, 308, 310
 Rape of Europa 474
 Ras al-Basit 361–2
 Ras Banas 561
 Ratiaria 255
 rationalization 43–4, 47
rationes imperii 31
 Ravenna 332, 354, 387; *see also* papyri,
 Ravenna papyri
 raw materials 6, 240, 265, 267–8, 432
 Raybun 586
 receipts 39, 178, 182, 186–7, 191, 194–5, 204, 534, 561–2
recepta 66, 83
receptum argentarii 83, 148
receptum nautarum 72, 83, 86
 Reculver 248, 252
 recycling 267, 271–2, 379
 Red River 457
 Red Sea 5, 13–16, 39, 199, 270, 444, 459, 491, 493–4, 531–2, 537–41, 546–50, 557, 559–61, 563, 565, 567, 573, 583, 585, 594, 611, 618
 Red Sea trade 13–14, 16, 459, 537–41, 557–73
 redyeing 418–19
 reeds 220
 registers 39, 85, 106–7
 Reims 272, 282–3
reivindicatio 69–70
Rekem 454
 rent 29–30, 32, 34, 36, 41–2, 44–5, 47, 93, 166
 reputation 148, 168, 221, 413
 requisition 6, 7, 32, 36, 37, 43, 189, 202–3, 254

Res Gestae 37, 580
res Mancipi 63–4, 67, 69–70
res nec Mancipi 63, 67–9
 retail 66, 122
 return cargoes 11, 192, 200, 203, 340, 342–3
 revenue 5, 8–9, 13–14, 17, 27–9, 31–42, 44–7, 71–2, 91, 95, 100, 103–6, 108–9, 134, 152–3, 204, 414, 542
 Rhegium 141, 164
 Rheinzabern 305–7, 309–13, 317
Rhetorica ad Herennium 148
 Rhine 17, 198, 253, 282, 306, 310–12, 314, 316–18, 320–1, 434, 618
 Rhineland 246, 252, 273, 276, 282, 285, 291–2
 rhinoceros 457, 478, 605, 610–12, 619
 Rhodes 354, 386, 446
 Richborough 245, 248, 252, 254
Rimam 478
 Rinan 457, 477
 Rio Tinto 288, 291
 Rioja 434
 risk 54, 67, 72, 74, 76, 82–3, 86, 92, 94–5, 100–1, 107, 134–5, 147, 149–50, 160–1, 168, 171, 185, 188, 190, 203, 222, 226, 490, 613, 618
 river 38, 175–81, 183, 185–91, 193, 195, 197, 199–203, 222, 228–9, 241–3, 251–2, 255–6, 266, 268, 270, 285, 307–8, 310, 316, 322, 397, 427, 429, 457, 459, 467–8, 471–3, 490–1, 493, 543, 560, 566, 608
 River Belus 266
 River Medway 252
 River Sarno 228
 river transport, *see* transport river transport
 roads 1, 6–7, 9, 13, 15, 72, 101, 104, 202, 229, 231, 251, 307, 314, 328, 334, 344, 459, 481, 499, 500, 532, 537, 539–42, 550, 560 n. 16, 587, 613, 615
 rock crystal 471
 Roman cursive 400
 Roman Empire 3, 5–6, 17, 33, 53, 57, 85, 117–18, 121, 129, 153, 175, 197, 212, 229, 240, 244, 256, 327, 353, 356, 379, 419, 427, 448, 458, 471, 477–8, 494, 507, 531, 546, 557, 559–61, 568, 573, 575, 604, 606
 Roman Republic 95, 133
 Roman World 2, 5, 9, 118–19, 150, 175, 182, 212, 215–17, 238–9, 244, 246, 253, 272, 275, 338, 384, 386, 413, 443, 445, 460, 471, 476, 535, 544, 560, 572, 580, 594
 Romanization 5, 59
 Romanus 65, 332, 616
 Rome 1–3, 7, 14–15, 31, 38, 54, 57, 61–2, 68, 70, 73–4, 90, 95, 101–2, 104–5, 107–8,

- 117–20, 128, 138–41, 147–54, 156–60,
 162–3, 165–6, 171, 176–7, 184, 189,
 197, 202, 212, 218, 220–1, 225, 229–30,
 237, 239, 250, 254, 256, 271, 273, 277,
 282, 287–8, 337–43, 354, 367, 370–1,
 373–8, 380–4, 390, 413, 418, 429, 431,
 436–7, 444, 447, 454, 459, 485, 495–6,
 501, 531–4, 547, 550, 566, 573, 579,
 585, 587, 594, 599, 603, 605, 607, 609,
 611–13, 615, 617–18
 Arch of Constantine 380
 Augustan Rome 229
 Basilica Hilariana 381
 Basilica of Maxentius 380
 Baths of Caracalla 254
 Diribitorium 222
 Domus Tiberiana 381
 Flavian Amphitheatre 611
 Palatine 142, 222, 380, 404
 Porta Trigemina 218
porticus inter lignarios 218
portus olearius 212
 Temple of Venus 534
Vicus Tuscus 444
 Romuliana 255
 Rostovtzeff, Michail 3, 129, 176, 181, 182
 routes 1, 5, 15–16, 38, 39, 42, 82, 101, 175,
 221, 241, 252, 268, 270, 275, 277, 285,
 287, 291, 316–18, 320, 339, 340, 373,
 377, 381, 383, 436, 443–507, 531, 537,
 539–41, 544, 546–8, 550, 560–1, 580–2,
 585, 594, 599, 601, 604–9, 610, 614–18
 ‘chariot routes’ 608
 maritime routes 287, 457, 580
Praeter Caput Saxi 610
 ‘Road to Samarkand’ 461
 trade routes 5, 16, 275, 277, 291, 446,
 448, 473, 502, 504, 550, 585, 594,
 599, 601, 609
see also Silk Road(s), Silk Route(s)
 rubbish 433–4, 461, 464, 467, 469, 533
 rugs 460
 Rules of the Isle d’Oleron 53
 Rusadir 428, 436–7

 S’lt 437
 Saba 446
 Sabaeen 446, 580, 582–3, 585, 587
 Sabratha 608
 Sacae 481
sacrae largitiones 44
 Sado 354
 Sagalassos 224
 Sahara 13, 16, 599–600, 604–8, 615–17, 619
 Saigon 478
 sailing season 100
 Saint-Andeol 247
 Saint-Paulien 285
 Saint-Tropez 247
Saka 491–2
 Sala 284, 428, 430–2, 434–7
 Salakta 343
 Salamis 142, 146, 161
 salaries 102, 150, 323, 413, 419
 Saldae (Bougie, Bejaia) 329–30
 sale 3–4, 11–12, 14, 32, 37, 54, 57–8, 60–4,
 66–72, 76–9, 84, 88, 91, 101, 122, 168–9,
 192, 198, 203, 267, 278, 291, 314–15, 469
 Salerno 224
 Sallust 162–3
salsamenta 328, 332–3, 335, 339–40, 344, 429,
 432, 434, 437
 salt mines 607
 salt pans 605
 Salvius, C. Salvius Gratus 287
 Samarkand 461–4, 467, 472, 477, 502
 Samian ware, *see* pottery, samian
 Sammezzano 213
 sampling 153
 sand 240, 265–7, 268, 270
 Sanmezzano 213
 Sant’Antonino di Perti 337
 Sarapion 80, 179, 563, 567
 sarcophagi 12, 249–55, 492–3
 Attic 249
 Metropolitan 28, 218, 239, 249–50
 Sardinia 226, 272, 336, 343
 Sarno 228
 Sasanian coins 506
 Sasanian period 498, 502 n. 308, 531, 548, 550
 Sasanians, Sasanids 379, 474, 485, 503
 Sasanid Empire 550
 Satyrus 186
 Sava 256
 Sayyn 584
 Scaevola 98, 134
 Scandinavia 16–17
 Scaptius 146, 161
 Scapula, Publius 141, 151
 schist 250
 Scipio Aemilianus 136–7
 Scipio Nasica 137
 scribes 76, 78, 171, 181, 185, 400–1, 404
 Scythia Minor 255
 Scythica 491
 seabed weights 589–90
 Sebou 429
 Second Punic War 30, 153, 170
 Secundus 79, 179
 seismic activity 379
 Seius, Gaius 78
 Seleucia (port of Antioch) 387 n. 88

- Seleucia on the Tigris 453, 477, 480, 484, 491,
 497–8, 500, 502, 504–5
 Seleucid Empire 453
 Selicius 142, 145
 Seljuk period 498
 sellers 7, 57–8, 64, 66–71, 80, 183, 198
 Semnan province 498
 Sempronius Asellio 149
 Sempronius, Tiberius Sempronius
 Gracchus 137
 senator 92, 95, 141–2, 150, 158–9, 490
 senators 28, 92, 100, 108, 137, 142, 146–7,
 151, 168
senatus consultum 39, 148, 165
Senatusconsultum Velleianum 89
 Seneca 214, 224
 Septem Fratres 428, 432, 436
 Septimius Flaccus 610–12
 Septimius Severus 37, 181, 341, 378, 415, 533,
 544, 614
 Sera Metropolis 480
 Serapis 533–4, 539
 sericulture 471, 498
sestertii 14, 39, 76, 106, 152, 222, 403–5, 407,
 409–19, 543, 558–9
 Severan Dynasty 377, 449, 490
 Severus Alexander 218, 533
 Seville 283
 Sexi 407, 436
 Sextius 141
 Seyssel 251
 Shabwa 585
Shan 453, 455, 460, 464, 468–70
Shan-shan 455, 464, 468–9
Shan-tong 470
 Shanghai 450
 Shar-I Qumis 498
 Shatiel 472
 sheep 227, 451
Shendu (India) 451, 453, 459, 460
Shiji 449, 451, 453
 shipowners 73, 88, 177, 184, 189, 197,
 199–200, 203, 493, 548
 shippers 1, 7, 83, 122, 140, 171, 176, 178, 186,
 190, 192, 199, 495, 531
 shipping 6, 11–12, 15, 53–5, 72, 88–9, 92, 177,
 179, 182, 195, 197–200, 203–4, 211,
 373, 494–5, 585, 594
 ships 1, 5, 11, 14, 39, 67, 71, 73–4, 82, 86,
 88–90, 92, 94–5, 105–6, 108, 129,
 139–40, 176, 178–82, 184–90, 191–8,
 200–4, 217, 220, 222, 229, 231, 241–2,
 247, 253, 266–8, 270, 339–40, 343, 378,
 387, 436, 448, 456–8, 485, 492–3,
 494–5, 547, 561, 565, 585, 587–9
 merchant ships 1, 457, 589
 shipwrecks 100–1, 215, 247, 265, 268, 270–3,
 275, 276–8, 293, 304, 333, 336, 339–40,
 343, 357, 368, 376, 380, 436, 565
 Asinara 1, 272
 Blackfriars 1, 253
 Bourse 270
 Cabrera I 333, 336
 Cabrera III 333, 336, 339
 Cala Reale 272
 Cap Blanc 333, 336
 Cap de Garde 336, 343
 Dramont, E. 333, 336, 339, 343
 Elissa 357
 Embiez Ouest 270, 276
 Femmina Morta 336
 Fontanamare A 336
 Giglio Porto 336
 Grado 271
 Julia Felix 271
 La Palud 336, 339
 Lavezzi 277
 Les Sanguinaires A 268
 Marausa 336, 339
 Ognina A 336
 Pampelonne 336, 339
 Pecio Gandolfo 436
 Plemmirio B 336, 339
 Pointe de la Luque B 336, 339
 Port-Miou 336
 Porticcio 277
 Saint-Gervais 3, 278
 Tanit 357
 Trincere 336, 339
 Viganj 368
 ‘Shlyt 437
 Sho 485
 shops 88, 278, 314, 380, 419
Shule 461
 Sicilians 2
 Sicily 1–2, 31, 61, 156, 271, 331, 336, 339–41,
 343–4, 428
 Siculus Flaccus 219
 Sicyon 161
 Side 3, 8, 37, 55, 158, 161, 189, 202, 230,
 344, 398, 400–1, 473, 475, 586, 588,
 604, 608
 Sidi Ali Ben Ahmed 428
 Sidi Khalifa 329–30, 337
 Sidi Marzouk Tounsi 329, 337
 Sidi Moussa bou Fri 431
 Sidon 267, 273, 444, 446
 Sidonius 238
 signal towers 498
 Sikait 535, 541
 Sila forest 225
 silica 266–7

- silk 443–5, 448, 451–7, 459–65, 467, 469–71,
 476–8, 481, 485–90, 492, 494–8, 502,
 503–7, 547, 557
 Silk Road(s), Silk Route(s) 13, 16, 443–506
 silk trade 443, 448, 469, 498
 silos 429
silva caedua 214, 222, 227
silva glandifera 214
silva vulgaris 214
 silver 4, 14–15, 46, 97, 102, 109, 134, 151–9,
 163, 165–7, 169–70, 191, 193, 198, 215,
 217, 227, 445, 459, 462, 494, 496, 498,
 543, 545, 558–60, 565, 567, 573, 585
 see also coins, silver
 silver fir 217, 227
 Sima Qian 449
 Simon bar Kochba 211
 Sinai 271
 Sind 460, 492–3, 547
 Sinope 231, 354, 371–3, 387
 Sinzig 314
 Sipsos 188
 Sirmium 255–6
 Siscia (Sisak) 256, 397–401, 403–6, 409, 412,
 415–19
sitologoi 178, 185–6, 188
 Sittius 162
 Siwa 607
 skiff 198
 skins 11, 334, 599
 Sko 186
 slave trade 16, 73, 74, 84, 437, 560 n. 16, 599,
 604, 605–6, 611
 slaves 15–16, 63–4, 67, 73, 81, 84, 86–7, 90–2,
 95–6, 100, 137, 400, 437, 457, 501, 541,
 560, 599, 604–6, 611
 Slovenia 274, 285
 smallpox 5
 smelting 216, 219
 Smith, Adam 121–2
 Smyrna 161
 social networks 344
 Social War 63, 149, 152–4
societas 55, 63, 73–4, 78, 88, 93–4, 104, 148
societas omnium bonorum 73
societas publicanorum 55, 104
societas Rutiliana 93
societates publicanorum 55, 73–4, 101, 104
 Socotra 494, 585
 Sofiana 271
 Sogdia, *see* Sogdiana
 Sogdian Letters 461–5, 469, 472–3
 Sogdiana (Sogdia) 451–2, 454, 456, 458,
 463–4, 467, 472–3, 502
 Sogdians 443, 461–3, 465–6, 472–3, 476, 481,
 502, 506, 507
 Soissons 248, 253, 283
 Sokna 608, 614
 Soknopaiou Nesos 39
 Solent 126, 319
 Solidoro Maruotti 224
 Soriano Cienfuegos 55
 Sosas 191–2
 Sousse, *see* Hadrumetum
 South Arabia 446, 493, 538, 581, 594
 South Arabian kingdoms 579, 582, 585, 594
 South China 457–8
 South Sea 456–7
 South Shields 311
 South-East Asia 456–8
 Southampton Water 319
 Spain 15, 59, 121, 145, 156, 216, 221, 225–6,
 282, 284, 293, 303, 328, 337, 340, 342,
 381, 383, 387, 428, 432, 434, 475, 503,
 593–4
 Sparta 354
 Spasinou Charax 453, 477, 484, 491, 496–7, 547
 specialization 199, 428
 speculation (on prices) 120, 122–3, 126, 129,
 343, 573
 speculators 121–2
 Spedius Chrysanthus 489
 spices 557
 spinning 470
sportulae 413
 spruce 222
 Sremska Mitrovica 255
 Sri Lanka 476, 495, 499, 541, 544, 575
 stamps 277–80, 282, 284–5, 287, 290–3,
 301–13, 317–21, 329, 334, 342, 344,
 386, 434, 613
 on glass 274, 293–4
 Avg 291, 611
 C. Lucreti Festivi 288
 CCAA 282, 291
 Cerei Attici 292
 Cn.A.Ing.V.A.V.M. 287, 291
 Com For Fron 292
 CSC 287–8
 ECVA 292
 Gn Asinivs Martialis 284
 P. Gessivs Ampliatvs 284
 Patrimoni 290–1, 294
 Patrimoni F(isci) Rationis/Raven(natium)
 291
 Pr.Manc.Ar 287–8
 pro(curatoris) manc(ipiorum ex) B(onis)
 C(aducis) AR 291
 Q Danivs Evhelistvs 287
 SPS CAF 287–8
 SPS CPD 287–8
 potters' stamps 301–6, 308–13, 317–21, 613

- staples 3–5, 7, 101, 119
 Stari Grad 288, 290
 state *passim*
 Statilius 489
 statio 614, 618
 statues 12, 139, 144, 155, 249, 251–2, 254–5, 379, 435, 437, 485, 489, 491, 505, 548
 statutes 61, 225
 stele 504–5
 stipulatio duplae 58, 64, 70
 Stokes, Adrian 238
 stone 10, 12–13, 182, 211, 229, 237–56, 329, 342, 435, 456, 461, 471, 479–81, 531, 533–5, 540–1, 589–90, 604–5
 decorative stone 237, 239–40, 244, 252, 256, 531
 stone trade 12, 237–8, 240, 246
 stone use 237–9, 241, 243–5, 247, 249, 251, 253–6
 Stone Tower 479–81
 stoneworkers 239, 243–4
 Strabo 8, 13–14, 16, 31, 39, 219, 221, 223, 229, 231, 237, 267, 334, 436, 444, 494, 498, 531, 580–1, 583, 604, 608, 618
 straits of Messina 340
 Strasbourg 286
 Stratippocles 137
 streets 433
 styrax 460
 Suellius, Gn. Suellius Flaccus 610
 Suetonius 28, 167
 Suez 212, 541
 Suez Canal 212
 Sulla, Lucius 151
 Sullecthum 329–31, 339, 342
 Sulpicius, C. Sulpicius Cinna 84
 Sulpicius, C. Sulpicius Faustus 79
 Sulpicius Rufus 150
 Sumhuram 477, 584–6
 summae honorariae 40–91
 supercargo 179, 203
 supply 4, 6–7, 12, 28, 35, 43, 55, 90, 101, 106, 120–3, 125–8, 133, 147, 149, 152, 156–7, 165, 169–70, 184, 189–91, 199, 201–4, 211–13, 216–17, 219–20, 222–5, 230–1, 237, 240–1, 244, 246, 253, 256, 271, 313–19, 321–2, 331, 337, 340–3, 353, 355, 357, 359–66, 368–71, 373–9, 381–7, 389, 432, 435, 452, 506, 539, 541, 548, 550, 587, 604, 615
 food supply 7, 122, 190
 military supply 6–7, 189, 199, 203, 253, 313, 323, 377
 supply networks 217, 240, 253, 256, 315, 321, 353–90, 550
 Suresh 560, 567–8, 572
 surplus 4, 54, 85, 118–19, 134, 145, 160, 162, 190, 431, 451, 603–4, 607
 see also agriculture, surplus
 surplus production 4, 54
 Susa 500
 Suspended Crossing 473
 Symmachus 219
 Syracuse 141
 Syria 221, 225–6, 232, 277, 357, 369, 371, 385, 443, 445, 447–9, 451, 453, 455, 457, 459, 461, 463, 465, 467, 469, 471, 473, 475, 477, 479–81, 483–5, 487, 489, 491, 493, 495–7, 499, 501, 503–5, 548, 580, 593
 Tacfarinas 609
 Tacitus 28, 37, 140–2, 164, 167–8, 445, 496, 498, 558, 573, 610
 Annals 164, 452, 473, 478, 498, 544, 558
 Tajikistan 461, 463
 Taklamakan Desert 447, 449, 452, 461, 467
 Talalati 615
 Tamilnadu 565
 Tamluk 544
 Tamuda 436–7
 Tang Dynasty 457, 463, 471
 Tangiers 431–2
 Taprobane 477, 495, 499
 Tarim Basin 447, 455, 458, 463–5, 467–9, 471–2, 480, 492
 Tarquinia 339
 Tarquinii 141
 Tarraconensis 247, 370, 433–4, 437, 593
 Tarragona 271, 290, 354, 378, 381–2, 390
 Tarsus 369
 tartaric acid 335
 Tartus 357, 372
 Tashkent 464, 472
 Taurus 224
 tax, taxes 4, 7–8, 28–35, 37–47, 73, 74, 86, 91, 93, 101–9, 119, 145, 153–4, 157, 162, 175–6, 178–9, 181–2, 184–6, 189, 193–5, 197, 200–4, 291, 322, 378, 415, 432, 445, 459, 476, 485, 489–90, 495, 501, 503, 541, 548, 560–1, 587, 610
 capitation (*capitatio*) 8, 32, 34–5, 44–7, 371
 chrysarguron 44–5
 collatio lustralis 44–5
 epikephalaion 44–5
 Desert-Guard Tax 195, 204
 Harbour of Memphis tax 194, 204
 in kind 16, 31–2, 35, 40, 42, 45, 47, 107, 128, 179, 204, 476, 618
 inheritance 32, 37, 80, 93
 land tax 34–5, 45, 107
 manumission 32, 37, 57, 87, 92

- poll tax 32, 34, 44, 106
 sales tax 37
tributum capitis 32
tributum soli 32
vectigalia 44
see also customs; taxation
 tax farmers 73, 86, 104, 106–7
 tax grain 175–6, 178–9, 181–2, 184–6, 189,
 197, 200, 202–4, 322
 tax registers 106–7
 tax-collector 495
 tax-collectors 489–90
 tax-farming 102, 104–7
 taxation 4, 6, 17, 27, 29–33, 35–7, 39–43,
 46–7, 105, 107, 109, 147, 214, 371, 378,
 560–1
 municipal 32–3, 36, 40, 44, 121, 126,
 199–200, 485
 taxes-and-trade model 29
 Taxila 474–5, 477, 501–2
 Tayadirt 437
 Tayma' 446
 Taymarsu 504–5
 Tebennythis 193
 Tebtunis 34, 180
 technical innovations 30
 technology 5–6, 117–18, 437, 603, 607–8, 613
 Telbis 490
 Tellicherry 566
 temple treasures 152, 154, 163
 Tenos 140, 164
 Tepe Azima 503
 Terence 135–6, 139, 141, 146
 Terracina 219
 territories 40, 107, 156, 256, 385, 458, 480, 582
 Testaccio, *see* Monte Testaccio
 Nuovo Mercato Testaccio 375
 Tetrarchy 220, 355, 378
tetratones 490
 Teurnia 255
 textile industry 385, 397–423
 textile production 402, 406
 textiles 10, 256, 397–423, 446, 486, 494,
 534, 605
 Thamusida 427–9, 432–8
 Thasos 246, 250
The Corrupting Sea 2, 4
 Thebes 607
 Theoderic 65, 128–9
 Theodosian Code 59, 109, 128, 218, 385
 Theodosius II 126
 Thina 457, 496
 Third Macedonian War 31
 Third Punic War 157
 Third-Century Crisis 377, 531
 Three Gauls 250
 Thubursicu Numidarum 40
 Thugga 331
 Ti-n-missao 617
Tiaozhi 451, 453, 458–60
 Tiber 11, 218, 221–2, 229
 Tiber Valley 218, 222
 Tiberius, emperor 28, 37 n. 41, 75 n. 89, 140,
 167, 169–70, 475 nn. 176 and 181, 484,
 489, 558 n. 6, 567–71, 573 n. 58
 Tibet 473
 Tigris 453–4, 480, 484, 498, 500, 502–3
 Tijirhi 607
 Tiklat 329
 tiles 66, 91, 613
 flue tiles 613
 hypocaust tiles 613
 Tillya-tepe 475–6
 timber 9–10, 195, 211–32, 432
 lignum 213, 218–19, 225
 long timber 212–13, 217–18, 220–3, 227,
 229–30
 material/materies 213, 217, 222, 225
 Timbuktu 617
 tin 559
 Tin Abunda 602
 Tin Hinan 617
 Tinea 229
 Tingis 428
 Tipasa 339
 Tiruppur 572
tituli picti 432
 Tivoli 533
 Tocharian 452, 468, 470–1, 495
 Tocolosida 431
 Tocræ 387
 togas 413
 tolls 7, 38, 203, 560
 Tombouze 1, 617
 Tomis 185–7, 255
 Tomis Canal 186–7
 Tongo Maare 617
 Tongres 273, 282–3, 287–8
 Tonkin Delta 458
 Tonkin Gulf 478
 Torres Costa 334
 Touat 617
 Toulouse 271
 Tournus 247, 251
 Tours 287, 503
 trade *passim*
 cross-Channel 16, 618
 external 7, 9, 13, 16–17, 38–41, 44, 47,
 618–19
 Indo-Roman 531, 537, 541, 549
 interprovincial 17, 268, 278, 285, 355,
 360, 371

trade *passim* (cont.)

- local 6–7, 9–10, 47, 219, 238–9, 242, 244 n.
32, 249–51, 253, 256, 278, 280–2, 293,
321, 340, 344, 373–4, 380, 383, 385,
402, 486, 490
- long-distance 2–6, 9, 12, 118–19, 177, 190,
195, 237–8, 241, 254, 272, 274, 282,
291, 293, 368, 370, 380, 383, 445–8,
462, 470, 490, 495, 498, 500, 504, 531,
540–1, 547, 612
- maritime 2, 4–6, 9, 11, 16, 39, 53, 57 n. 11,
95 n. 178, 118, 238, 242, 246, 272, 277,
287, 343, 445, 457–8, 477, 481, 495–6,
507, 579–81, 583, 591
- overland 11, 14, 16, 175, 178, 195, 202, 241,
244, 248–9, 251, 285, 322, 443, 445,
447–8, 458, 476–7, 480–1, 496–8, 501,
503–7, 544, 564, 605
- trans-Saharan trade 599–600, 604, 618, 619
- traders 3, 73–4, 109, 122, 126, 157, 203, 282,
322, 432, 446, 448, 481, 494, 497,
503–4, 506, 541, 559, 563, 565, 568,
572–3, 607, 612
- trading networks 198, 212, 463
- Trajan 1, 5, 15, 123, 181, 184, 186, 212,
479–80, 485, 496, 531, 533, 539, 541,
544, 546, 548, 572–3
- Tralles 161
- trans-Saharan trade, *see* trade, trans-Saharan
trade
- Trans-Saharans Project 616
- transaction costs 7, 29–30, 38, 42, 46, 107,
117–30, 203
- Transalpine Gaul 226
- transport 3, 6–7, 9–12, 14, 30, 37–9, 42, 54,
72–4, 83, 88, 90, 92, 102, 104–7, 118,
125, 175–204, 218–19, 221–4, 226,
228–30, 237–8, 240–3, 246, 249,
252–4, 256, 267–8, 270–1, 274–5, 285,
292, 307, 314–15, 321–2, 334–5, 431,
435–6, 448, 455, 470, 491, 531, 539,
541–2, 548, 563–4, 607
- land transport 11, 92, 175–6, 178–9, 195,
202–3, 229, 241
- river transport 175–203, 241
- sea transport 72, 90, 175, 241, 322
- transportation networks 8
- transport charges 193–4
- transport costs 9, 11–12, 107, 177, 203, 242,
252, 315, 323
- transportation 8, 39, 42, 45, 54, 71, 73, 108,
178, 203, 237, 241, 254, 306, 341, 443,
470, 477, 498, 505–6, 533
- transshipment 195, 471, 495
- Traube 129
- Travancore 566
- travertine 241, 249
- treasury 37, 74, 122, 141, 148, 152, 168–9, 474
- treaty 31, 57–8, 61, 63–4, 583
Foedus Cassianum 61
of Apamea 31
- tribute 8, 16, 176, 443, 448, 451, 457, 460, 465,
469–70, 558
- Trier 287, 290, 307, 312–13, 316–17, 354, 382
- Trieste 354, 374–6, 381
- Trimalchio 92
- Tripoli 357, 369, 610
- Tripolitania 16, 370, 437, 607–8, 613,
615–17, 619
- Tritium Magallum 434
- Troad 248, 251
- Tubusuctu 329–30, 342
- tuff 241, 254
- tunics 405, 414–15, 417, 494
- Tunisia 11, 327–9, 331, 340, 344, 378, 382,
432, 434, 615–16
- Turdetania 231
- Turfan 448, 467
- Turin 287
- Turkestan 467, 495
- Tuscia 128
- Tusculum 144
- Twelve Tables 164
- Twesh 605
- Tyre 267, 354, 357, 369, 479–80, 491, 495, 610
- Tyrian purple 414
- Tyrrhenian Sea 428, 565
- Ubari sand sea 605, 607
- Uchi Maius 430
- Ulcissia 416
- Ulpian 79, 98, 121, 123, 126, 213, 220
- Ulpian, M. Ulpianus Yarahai 485
- unguents 277, 282
- Upper Egypt 196
- Upper Germany 282, 308, 310
- Upper Indus 456, 473
- Upper Media 502
- Upper Moesia 479
- Upper Period 588, 594
- Urban Prefect 96
- urbanization 7, 30, 118, 228, 243–4, 427, 616
- Urbino 287
- utilitatis causa* 90
- Uzbekistan 461, 463, 472, 475
- Vaballathus 15
- Vaison 281, 287–8
- Val d'Arno 213
- Valerius Asiaticus 79
- Valerius Festus 610, 612
- Valerius Flaccus 151

- Valkenburg 273
 Vandals 337, 386, 616
 Vardanes 501
 Varro 76, 214, 226–7, 229, 497
 veal 193, 219, 228
 vegetable seed 192
 Vekil'–Bazar 504
 veneer 4, 119, 243, 250, 252, 254–5, 435, 613
 Venice 436
 Verona 287, 587
 Verres 141, 146
 Verulae 230
 Verulamium 304
 Vespasian 38, 497, 573
 Vestorius 144–5
 Vesuvius 75, 224, 499, 572
 eruption 75, 224, 414
 Vettienus 143–4
 Vetus Hydreuma 541
 Via Domitia 248
 Via Nova Hadriana 15, 202, 539–40
vicus materiarius 218
Vicus Tuscus 444
 Vienne 251, 288, 354, 381
 Vietnam 457–8, 478, 495
 villa 4, 144, 238, 310, 429, 431, 533
 villa system 4
 Villebois 247, 251
 Vima Kadphistes 474
 Viminacium (Kostoloac) 255
 Vindolanda 14, 406, 414
 vinegar 562
 vineyards 183, 222, 227, 489
 Vipasca 415, 418
 Virunum 255
 Visigoths 337
 Vitruvius 239–40
 Vologaeses I 502
 Vologaeses IV 547
 Vologaesias 480, 484–5, 491, 497, 500, 547
 Vologaesocerta 502
 Volusius Maecianus 404–6
 assis distributio 403
 von Richthofen, Ferdinand 447
 Vorsen 287, 290
 Vosges 308
 Vrina Plain 379

 Waddan 608, 614, 616–17
 Wadi al-Ajal 600, 602–3, 605, 608
 Wadi Faynan 219
 Wadi Hauran 491
 Wadi Natrun 267, 270
 Wadi Semna 539
 Wadi Tanezzuff 600, 603–4, 607
 wages 180, 413, 415, 419, 534
 wagons 242–3
 Walbrook mithraeum 252
 Wales 309–10
 Wang Mang 457–8, 463, 468
 war, warfare 30–1, 37, 63–4, 66, 91, 127, 147,
 149, 152–4, 157, 166, 169–70, 211, 212,
 220, 225, 267, 397, 419, 479, 485, 497,
 550, 609–10, 614
 the Wash 311
 waste 271, 304, 379, 604
 water 100, 117, 176–7, 218, 223, 226, 228–9,
 241, 276, 319, 379, 501, 587, 603,
 606, 610
 Watwat 600
 Weak River 459
 Weald 309
 weaving 414, 486–7
 Weber, Max 30
 Wei 450, 461, 469, 489
 Weldon 248, 253
 West Mediterranean 305, 360
 Western Asia 451
 Western Han 454
 Western Regions 449–52, 454–6, 458–61,
 465–6, 469, 471, 476, 506
 wheat 33–4, 44–5, 75, 179–80, 185, 187–8,
 190, 192–5, 197, 199, 202, 223, 378,
 385, 387, 429
 Wheeler, Mortimer 13, 544, 557, 599
 Wilcken 32, 177, 182
 wild beasts 486, 558, 599
 willow 180, 221, 228
 willows 227
 wine 9, 11, 15–16, 35, 57, 67, 73, 83, 91, 101,
 105, 125, 158, 192–3, 195, 199, 201,
 215, 292, 334–5, 342, 344, 360, 367,
 370–7, 380–5, 428, 430, 434, 437, 538,
 543, 549, 562–4, 568, 591, 593–4,
 603–4, 608, 613
 Aegean 367, 370–2, 434, 538
 Black Sea 15
 Campanian 15, 367, 377, 594
 Cretan 367, 370, 375, 377, 380–1
 East Cilician 368, 371, 374, 375, 376
 Egyptian 15, 387, 390, 543
 Gallic 367
 Laodicean 15, 374, 563, 593
 Palestinian 355, 360, 368, 370, 373–4, 390
 presses 334, 360, 373, 383–4, 603
 Spanish 15
 Tmolan 193
 West Cilician 360, 367, 372–5
 wine production 334, 360, 383
 women 58, 89, 199, 444, 462, 472, 475–6, 558
 wood 36, 180, 211–31, 437
 woodlands 211–14, 218, 220–9, 231

- wool trade 401
- workshops 12, 265–8, 270–4, 276–7, 282, 287,
292–3, 302, 305, 317–18, 322, 329–31,
334, 336–7, 430, 474, 486, 612
- wrecks, *see* shipwrecks
- writing tablets 74
- Wroxeter 286, 311, 314–15
- Wusun 451–4

- Xanten 287
- Xiandu* 473
- Xijun 452
- Xinjiang 446–7, 467–8, 470–2, 487, 492, 495
- Xinjiang Province 467
- Xiongnu 443, 449, 451–2, 454–6, 467,
473, 492
- Xiwangmu* 459
- Xuanquan 465, 467, 506
- Xuanzang 474
- Xuwen 457

- Yangtze 467
- Yanqi 460

- Yarhibol 490, 548
- Year of the Four Emperors 609
- Yemen 16, 446, 548, 579, 587, 593
- Yersinia pestis* 5
- Yingpan 465, 467, 471
- Yongchang 458
- York 14, 286, 288, 290, 311, 316, 323
- Yuezhi* 451–2, 459, 468, 492
- Yumen Guan 466

- Zagros mountains 499
- Zaragoza 284
- Zarzis 608
- Zelbio 282–3
- Zenobia 15, 550
- Zenon 38, 191, 201, 446
- Zerhoun 430
- Zeugma 354, 377, 379, 387, 479, 490, 499,
501–2
- Zhang Qian 449, 451–4, 456, 458–9, 463, 476
- Zhichun Liu 449
- Zilil 428, 430–1
- Zitha 330